S. HRG. 98-361 PT. 2

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

H.R. 4185/S. 2039

Part 2—(Pages 1-902)

Contracting Policies and Procedures
Research, Development, and Acquisition Overview
Missile and Weapons Procurement
Navy and Air Force Aircraft Procurement Program
Spare Parts Management and Pricing Policy

Printed for the use of the Committee on Appropriations

U.S. GOVERNMENT PRINTING OFFICE

16-520 O WASHINGTON : 1984

5181-24

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DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

TUESDAY, FEBRUARY 1, 1983

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, D'Amato, and Rudman.

DEPARTMENT OF DEFENSE

DEFENSE CONTRACTING POLICIES

STATEMENT OF WILLIAM A. LONG, DEPUTY UNDER SECRETARY OF DEFENSE, RESEARCH AND ENGINEERING (ACQUISITION MANAGEMENT)

CONTRACTING POLICIES AND PROCEDURES

OPENING STATEMENT OF SENATOR STEVENS

Senator STEVENS. Good morning. This is the first hearing of the subcommittee in this Congress. We are here today to have testimony from the Department of Defense witnesses regarding Defense Department [DOD] contracting policies and procedures. Now, this has been motivated by several things, in part by reports from the General Accounting Office [GAO], from the House Appropriations Committee's investigations staff and the Defense Audit Service which indicated greater reliance in DOD on sole source procurement. This comes about at a time when the administration is pursuing a massive defense buildup.

Over the last 10 years we have been told there has been a 5-percent decline in competitive procurement. Moreover, the GAO has told us that the share of defense contracts awarded on the basis of price competition dropped to less than 30 percent in fiscal year 1981. This is just the beginning of a series of hearings by which we are going to try to find out why this occurred and if it can be reversed.

In addition to this broader examination of the DOD contracting procedures, the subcommittee will address some specific case examples which imply the Department lost opportunities to achieve savings by permitting sole source selection or through specifications that restrict competition.

I am pleased to have here this morning the Deputy Under Secretary of Defense, William A. Long.

Mr. Long, we will put your complete statement in the record and ask that you highlight your remarks.

I want to say that throughout this year time is going to be of the essence for all of us. We do hope that the departmental witnesses and all other witnesses will cooperate with us by summarizing your remarks. We normally have an opportunity to examine them, and even if we don't, we have a summary of them prepared by the staff.

So, we would like to have you summarize them the way you think the statement should be highlighted and then we will proceed.

After Mr. Long we will hear from Mr. Dausman, Acting Deputy Assistant Secretary for Acquisition in the Office of the Assistant Secretary of the Army, and then from Mr. Pyatt, the Principal Deputy Assistant Secretary of the Navy, and then Mr. Maese, the Deputy Director of the Directorate of Materiel Management, San Antonio Air Logistics Center, Kelly Air Force Base, Tex.

We will expect to hear from Senator Baucus of Montana and Congressman Marlenee of Montana sometime during the morning. We will listen to them when they come in.

Do you have any opening comment, Senator Rudman?

Senator RUDMAN. No, Mr. Chairman.

Senator STEVENS. You may proceed, Mr. Long.

EMPHASIS ON COMPETITION

Mr. LONG. You have introduced my collegues from the Services who are with me. Let me take a few minutes to give you some of my thoughts on the Department of Defense management's emphasis on competition. Then I will address or the Service representatives will address any questions you may have.

As you know, the Department relies almost exclusively on the private sector for providing the goods and services that we need in fulfilling our Defense mission.

I think that the management emphasis of the Department on competition and the number of transactions in which we have engaged competition in a meaningful sense indicates a recognition of its importance not only to the Department, but to our entire economic way of life.

The notion of enhancing competition, of continuing management emphasis on it, was recognized in 1981 when the new administration was constructing the defense acquisition improvement program and it included in that program a specific initiative on enhancing competition.

I think that some of the other things we have done similarly display the recognition within the Department that we need to keep management emphasis on competition. Things that we have done include the appointment in all of our major buying commands of an advocate for competition. And, at our request, Secretary Weinberger sent a letter out late last year, again, for the purpose of continuing the management emphasis on the need to explore our pro-

curements to assure that where feasible and where it makes sense we do engage in competition.

MONITORING OF NONCOMPETITIVE PROCUREMENT

In addition, the Acquisition Improvement Steering Group that we formed in 1981 has a specific working group that continues to monitor noncompetitive procurement. From a management standpoint, they are assuring that competition advocates are in place and reviewing noncompetitive actions to assure that the procurement situation has been evaluated properly and that we do enter into contracts on a competitive basis wherever feasible.

I won't sit here and tell you that we are 100 percent effective because no system dealing with 12 million procurements a year is going to be 100 percent effective, but I think we do have a process that is effective, that does result in procurements on a competive basis in most instances in which, in the judgment of the decisionmakers, competition is consistent with our defense mission.

SUBCONTRACT LEVEL COMPETITION

There is also a substantial amount of activity being engaged in presently and for the last year to increase the amount of competition at the subcontract level. Now, this is particularly important in our so-called major systems where the cost of competition on the front end can be extraordinarily large in terms of the number of dollars.

In some instances the quantities are simply not enough to warrant the additional investment as a nation or as a Department in the full range of equipment that is necessary for a second source. But even when that is the case we do look to the prime contractor to engage in meaningful competition at the subcontract level wherever that makes sense and the investment oftentimes is substantially smaller at the subcontract level so that smaller quantities of units will still justify competition.

In looking at 48 major systems that were the subject of recent SAR reports, Selected Acquisition Reports, we found that meaningful competition was engaged in in virtually all of them, including in some instances at the high-tier subcontract level. Forty-two of the forty-eight contracts were awarded after competitive source selection. Now, I hasten to point out that this is not always pure price competition. I think that effective competition goes beyond just pure price competition.

We do have technical competition. When I say technical competition, I mean procurement in which the technical superiority is a heavily weighted evaluation factor, but that does not mean that price is not a factor as well.

We have broken out the subsystems in many major systems and competed them separately. We have, as I mentioned earlier, emphasized the importance of competition at the subcontract level. Some procurements simply are not subject to prime contract competition. For example, in the Trident I missile system there was about $1.4 billion competed at the subsystem level. There is only one yard in the country that can perform the prime contract, but

there still is meaningful competition injected into that particular acquisition.

Having summarized for you briefly some of the things that it seems to us indicate that we, in terms of management of our process, were well aware of and working to increase competition, I think what I ought to do now is turn to your questions as appropriate.

[The prepared statement of Mr. Long follows:]

PREPARED STATEMENT OF WILLIAM A. LONG

DEPUTY UNDER SECRETARY OF DEFENSE

RESEARCH AND ENGINEERING

(ACQUISITION MANAGEMENT)

Mr. Chairman and members of the committee:

I appreciate the opportunity to discuss with you our management efforts to enhance competition.

The value of competition in the acquisition process is one of our most widely accepted concepts. We believe that where effective competition is obtained, it can serve to reduce the costs of needed supplies and services, improve contractor performance, help to combat rising costs, increase the industrial base, and ensure fairness of opportunity for award of government contracts. The attainment of more effective competition is one of the major challenges facing us today and has been included as one of the 32 initiatives in the DoD Acquisition Improvement Program.

In July 1981 the Military Departments and Defense Agencies having procurement authority were requested to develop management objectives for the enhancement of competition. Their responses were positive and evidenced strong support for this initiative. To assure that DoD Components were following concepts and procedures that would produce meaningful results, this was followed up in November 1981 with direction that actions be taken to (1) designate advocates for competition in all buying organizations, (2) ensure that each commander understands his responsibility for ensuring maximum feasible competition, (3) establish goals for competition in all buying organizations, (4) make competition in systems development and production a matter of special emphasis, and (5) develop procedures for identifying and publicizing significant achievements in competing contractual requirements.

The Military Departments and the Defense Logistics Agency (DLA) have implemented this direction. For example, designated advocates for competition are responsible for ensuring that opportunities for competition are not lost or foreclosed by restrictive need statements, unnecessarily detailed specifications, poor procurement planning, or by arbitrary actions. Their duties include actions to ensure that competitions are planned early in the process, that factors or problems that inhibit competition are surfaced and corrected, and that all reasonable competitive alternatives to a proposed noncompetitive award have been considered.

The Joint Logistics Commanders have taken the matter of enhancing competition seriously, and I am assured of their continuing effort to further our objective. The Secretary of Defense has taken a direct and personal interest in this matter. In September 1982, he directed the DoD Components to place maximum emphasis on competitive procurement.

Beyond this, we have established a working group on competition composed of senior procurement personnel from the Military Departments and DLA. They have been looking at conditions that inhibit competition and exploring methods and approaches to overcome these conditions. Currently, they are conducting a representative sample review of the reasons for noncompetitive procurement.

Although they are only at the midpoint of their review, they have tentatively cataloged about 30 separate reasons. We anticipate this phase of the review to be completed within the next 2 months.

Some examples of types of procurement actions where competition is not practicable are:

. Only one source available--e.g., nuclear carrier, Trident missile, etc.;

. Follow-on production contracts for major equipment to sources initially established through competition--e.g., F-15, F-16, M-1, etc.;

. Military equipment requiring standardization for valid operational and/or logistical considerations (in some instances);

. Critical and high reliability components and parts;

. Purchases to maintain preparedness or readiness--e.g., ammunition GOCO suppliers;

. Duplication of costly facilities and tooling required that would exceed the savings anticipated from competition; and

. Urgent procurements.

We are endeavoring, where it is feasible, to develop additional sources for competitive purposes, eliminate military specifications that inhibit competition, utilize commercial products, and break away replenishment spare parts from major equipment producers for competitive procurement.

Every year we publish our procurement statistics. They reflect the competitive categorization of the dollars obligated by contractual instruments during that year. They show cold, hard results but do not show the significant efforts made to enhance competition in individual programs that will be reflected in future years. The large bulk of our current major system production contracts are the result of source selection decisions made years ago. The results are also significantly affected by the mix of products procured during the year. Additional production quantities of major systems awarded to active producers, combined with less dollars obligated for petroleum (due to lower prices), tends to drive down the statistical weighted average for competition.

For fiscal year 1982, 40 percent of our awards were the result of price and technical competition. Additionally, about 26 percent of our awards were follow-on contracts for production of programs where the source had initially been established as the result of competition. Another 3 percent of our awards were the result of buying at catalog or market prices established in the competitive marketplace. The remainder were other noncompetitive awards. While these statistics reflect our strong commitment to increase competition, we recognize there is much yet to be done. You may be assured that we will continue our efforts to obtain competition wherever practicable.

This concludes my formal statement, and I would be pleased to respond to your questions.

INCREASE IN COMPETITIVE AWARDS

Senator STEVENS. We are aware that the percentage of the competitive awards has increased from 32 percent in 1980 to 36 percent in 1981.

Can we expect this progression to continue? Do you have any new approaches that are going to assure that the level of competitive awards will increase?

Mr. LONG. Are those percent of awards or dollars?

Senator STEVENS. The percentage that I have is 32 percent in 1980 and 36 percent in 1981. That is percent of dollars, I am told.

Mr. LONG. I think because of some of the very large contracts in 1983 and 1982 the trend may not go the way we would like it to go. For example, aircraft carriers which are going to be noncompetitive awards and take up a lot of the procurement dollars. On those statistics we may have a decline.

Senator STEVENS. How about the number of contracts? Do you have those figures?

Mr. LONG. Contract actions in 1981 were 48.1 percent competitive. In 1982 the number increased to 52.6 percent. While I can't guarantee the future, I can tell you that we expect in our managing, in a goal sense, to continue that trend upward.

SOLE SOURCE PROCUREMENT

Senator STEVENS. We are disturbed with the finding that the GAO has made, that it examined 25 cases and in 70 percent of the cases the contracting officers acquiesced in sole source recommendations from headquarters or accepted preferences that were supplied by headquarters without adequate support being offered by technical personnel to justify noncompetitive procurement.

Are you doing anything to tighten up the procedures to meet the aspect of the GAO report?

Mr. LONG. As I mentioned briefly and elaborate on in the written statement, we have initiated an effort to enhance competition. I know this is part of the Presidential procurement reform program under the Executive order, but we had that in place before the Executive order was issued in 1982.

Senator STEVENS. Is there any appeal system in the Department for someone who has been frustrated by sole source procurement, such as some of the cases we are going to hear now, where they can go to and protest the sole source procurement and have some kind of immediate review of the situation?

Mr. LONG. When you say appeal process, it is not a formal appeal process, but we have the competition advocates in the buying commands, not just at the major system commands, but buying commands of which there are several hundreds. Also, my Office for Acquisition Management and similar offices in each of the Services as well as the Defense Logistics Agency receive and handle inquiries on the matter of sole source procurement.

When we get inquiries we promptly look into them. I know that the Services react similarly. We are not interested at all in sole sourcing where it doesn't make sense.

We are interested in competing where it makes sense. When someone tells me, however, that they have reviewed 25 procure-

ments, that is not a very big sampling. We have over 12 million procurement actions a year. We have several hundred thousand contracts a year that are in excess of $25,000.

We are also in the process, through our Acquisition Improvement Steering Group of engaging in a study that will take a statistically valid random sample of noncompetitive procurements for 1981 and 1982 to determine several things. One, what are the reasons for engaging in noncompetitive procurements? We look at our statute and most people assume that the 17 exceptions in the Armed Services Procurement Act are bases for sole source procurements, but that is not what those are at all. They are simply bases for not using the formal advertising process. They are bases on which we can negotiate and we do negotiate in the competitive environment quite a large number of contracts.

GOALS PROCESS

Senator STEVENS. I understand that, but have you any stated goals? The GAO indicated there was no stated goal for competitive procurement.

Mr. LONG. That is not the case, Mr. Chairman. It may have been the case at the time. In this administration we have initiated a goals process.

Senator STEVENS. What is your stated overall goal for 1983?

Mr. LONG. The 1983 goals were due into my office yesterday. I just don't have them yet. I can give them for 1982. For 1982 the Army's goal was 35.8 percent price and design competition. Actual was 40.3 percent. The Air Force goal was 35 percent. Actual was 34.2 percent.

Senator STEVENS. Isn't that the tail wagging the dog, Mr. Secretary? Why don't you give them a goal? Why don't we tell them we want every contract on a competitive basis unless someone certifies it is not in the public interest? Why does it havd to be the other way?

Mr. LONG. It is a negotiating process just like SBA's goals are a negotiating process. We could mandate goals, but I don't think from a management standpoint that is a very effective way to achieve results.

Senator STEVENS. GAO estimates we lost $10.5 billion by not haviong a competitive goal in 1981. So if you just put a competitive goal of even bringing about a 25-percent savings through competitive application of procurement, we will save $10.5 billion.

Has the answer to that allegation gone to GAO?

Mr. LONG. We have responsed to the GAO report. I don't think we addressed that specific point. Quite frankly, I don't recall the arithmetic or the model that the GAO used to come up with those numbers.

Senator STEVENS. Rather than curring out whole systems, as we are going to be forced to do this year in order to meet the goals that have been established for this subcommittee, why don't you establish some goals for the Services?

Mr. LONG. If I may, Mr. Chairman, we are not simply taking the numbers that the Services offer up and putting them in the book.

We are analyzing them with a view to coming up with goals that will be difficult, but achievable.

From a management standpoint we are not going to accomplish anything if we simply pull a number out of the air and say, compete 50 percent. That is not a realistically doable act on the part of the Services.

Senator STEVENS. I want to yield to my colleague, Senator Rudman, but as I said, this is a first of a series of hearings. I am asked by the majority leader to try to see if we can recess the Senate later this year and get out around the country and hold some hearings.

I think there is indication of the tip of the iceberg here as far as defense spending is concerned. I would much rather see the savings come about through the voluntary action of the Department and insisting on competitiveness in really stating goals.

Even if they may not totally achievable in the first year for the Services, the Department should state them and we should attempt to reduce this budget by virtue of the competitive factor, because if we don't the reductions are going to be in places where they are really going to hurt.

These examples we are going to see today I think are things that we want to call to the attention of the Department. I hate to get to the point where we mandate that in legislation, that we set a goal for you and part of the certification by individual procuring officers to be approved by the Secretary if it is not complied with.

When we get to the point where we are dealing with a level of competitive procurement that is only 36 percent of the total program, we need to correct procedures and goals. I understand the aircraft carriers, everybody understand that. You don't have many contractors sitting around who can compete for aircraft carriers construction.

Mr. LONG. We had competition in the battleship program.

BATTLESHIP PROGRAM

Senator STEVENS. Why did you let them take the first one from Seattle down to Los Angeles and displace three vessels that were already waiting for repairs? It may be competitiveness, but you have to look at the whole scene to understand what happened with the battleships.

As a practical matter, what I really want you to do is take a message back to the Department that this is the first of a series of hearings of this subcommittee where we are going to find some way to force the Department to insist that the Services start saving some of this money so that those of us who support defense are not going to have to sit here and keep cutting the President's request to the extent that we are going to have to do it this year.

We think there are ways that you can mandate savings that will reduce the budget the way the cry has been made to reduce it and still get us the systems we need.

Senator Rudman.

SOLE SOURCING

Senator RUDMAN. I have only one question of Mr. Long.

We talk about competition. Of course we tend to focus pretty much on cost savings, which is what the chairman has directed his attention to this morning.

I believe something else is critical and I would like your response to it. An analysis of procurements in the last 5 years indicates a growing concentration of both major systems and subsystems within a relatively few defense contractors, a relatively narrow percentage of the industrial base.

Do you have any concerns that by doing as much sole sourcing as we do we will not be creating an additional base that will be there, switching from civilian to military production in the case of the kind of mobilization that we might need. That not competing more and more items, subsystems in particular, leads to a situation where if we needed to mobilize, someone to produce these things by multiples of two and three, we essentially would have no one out there to gear up with technological equipment to do it?

Mr. LONG. We are concerned as the Senate is on mobilization. In fact, preserving production capacity is one of the specific justifications for noncompetitive procurement. That is not to say we use it with frequency, but if you look at the history of procurement, you will find that there are instances in which procurements have been directed rather than competed in order to preserve production capacity.

That is not to say, however, that we don't recognize your point as well, that in some instances competition is necessary to expand the base, to get more producers. We are very conscious of that and that is precisely one of the main reasons we are putting so much competitive emphasis in our major system activities at the higher tier subcontract level.

You may not need two companies assembling tanks, but you may very well need two companies making fire control systems and things like that.

MULTIYEAR PROCUREMENT

Senator RUDMAN. You are touching the very points I am going to direct to the next witness from the Army because it seems to me that all the multiyear procurements in an absolute sense may have the illusory effect of saving money, but in the long run may not only not save money in some cases, but cost money in the long run and slink the base.

I would like to talk about tank systems acquisition and direct myself to that subject with Mr. Dausman who is here to testify.

Senator STEVENS. That is one of the subjects we want to get into. I, too, have been one who thought that the multiyear funding concepts were good until we saw some of the aspects of competition slipping away. It may be that we have to develop a new system to have the successful bidder get not more than a fixed percentage of business for a period of time.

Mr. LONG. There is nothing inconsistent with competition and multiyear procurement. In fact, a number of the programs that we are suggesting are appropriate for multiyear have come through the competitive mode. As we look at multiyear procurement for

some of our nonmajor systems in many instances that is head-to-head, direct competition.

The point is that once a competitor is selected then does it make sense to do certain things in the front end that will relate to future year annual buys in order to achieve economies and efficiencies? I don't think any of us believe and certainly I would not suggest to you or your colleagues that multiyear is the be-all and end-all for all systems.

I would suggest, however, that there are instances in which the application of the multiyear approach to acquisition can save us over a program life a lot of dollars. But it alone is not, as I say, to be the be-all and end-all. It is a device that in some instances makes sense.

Senator STEVENS. I think to a great extent they should be authorized, but I am not sure funds should be appropriated on that basis unless there is clear showing that competition will also be preserved in the cycle.

All I can say is that we have made a commitment now, because of the number of cases that were brought to our attention last year, that rather than face these amendments on the floor based on a case that has been made to an individual Senator or several Senators, we want to have hearings. We have made an outstanding offer to our colleagues that this subcommittee will hold hearings on matters such as this and they may be at odd hours.

Mr. LONG. Let me assure you we share your objectives, both in the sense of programmatic decisions and also with your remarks on the budget. We are certainly not interested in increasing the cost of defense, but rather decreasing it.

I think that this administration has a number of actions in process that are going to assist materially in what are our common objectives.

Senator STEVENS. We hope so. We hope that the Department will look on what we are doing constructively. We want to give the people who are disturbed by the current procedures a chance to be heard and determine whether those procedures can be modified so that the situations will not be repeated unless they are absolutely necessary in the national security.

ADDITIONAL COMMITTEE QUESTIONS

The committee has additional questions which we will submit to you for response in the record. We thank you very much, Mr. Secretary.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

SUBMITTED QUESTIONS

Price Reasonableness

QUESTION: When the Department finds itself in a sole-source arrangement, what steps does your policy prescribe to insure that prices are not unjustifiably increased?

ANSWER: Contracting Officers are responsible for the reasonableness of contract prices. Contractors are required to submit cost data and certify that it is accurate, current, and complete for noncompetitive procurement actions of $500,000 or more. Before negotiations are conducted, the data is subject to audit and price analysis. In addition, the contract includes a provision providing for post-award audit up to 3 years after final payment of the data certified by the contractor. All noncompetitive proposals above the small purchase threshold are subjected to price analysis before negotiation. All proposed modifications to the contract are subjected to the same review process. All incentive and cost-type contracts are subjected to audit review during contract performance as conditions warrant and to final audit upon completion.

Noncompetitive Philosophy

QUESTION: A House Appropriations Surveys and Investigations staff report contends DoD's preoccupation with noncompetitive philosophy is a major cause of escalating procurement costs and a serious curtailment of an already limited industrial base. Would you care to comment on this?

ANSWER: We simply do not agree with the Surveys and Investigations staff contention that DoD adheres to a noncompetitive philosophy. Moreover, noncompetitive procurement is not synonymous with "escalating procurement costs." Even within its own report, the Surveys and Investigations staff recognizes that competition can cost money and is not always prudent. As to effects on the industrial base, we regard competition as generally supportive. However, winner-take-all philosophy combined with contractor investment and limited quantities of production, such as ammunition parts and pieces, limits future competition from capable suppliers. In these cases, directed awards may be necessary to maintain a mobilization base.

Competitive Trends

QUESTION: Have competitive procurements increased in fiscal year 1982 and, if so, are savings of this magnitude being realized?

ANSWER: The value of competitive contracts increased from approximately $36 billion in FY 1981 to $41 billion in FY 1982, while the rate of competition remained about the same. The number of competitive contract actions increased, climbing from 48.1 percent in FY 1981 to 52.6 percent in FY 1982. It is assumed that competition in the marketplace establishes a fair and reasonable

price. This also may result in better performance and a higher quality product. The extent of any dollar savings would be dependent on the circumstances of the individual procurement actions involved.

Competitive Initiatives

QUESTION: GAO believes that the absence of specific guidance and establishment of competitive goals are the main reasons why competitive procurement is not used whenever feasible. What is the Department doing to improve the use of competitive procurement practices?

ANSWER: Specific guidance, in the form of questions for Contracting Officers to consider when contemplating noncompetitive procurement, were forwarded to the Military Departments and Defense Agencies in November 1981. These questions had been developed by GAO and were considered to be of sufficient merit for use by all DoD Contracting Officers. As to competitive goals, these were instituted in FY 1982.

In addition to the foregoing, we have also established competition advocates in all buying organizations; assured that each commander understands his responsibility for ensuring maximum feasible competition; emphasized the use of dual sourcing, leader-follower, and other such techniques where it makes sense; made competition in systems development and production a matter of special emphasis; and established a Sub-Group on competition as part of the DoD Acquisition Improvement Program.

Spares and Repair Parts

QUESTION: In 1980 Navy's Aviation Supply Office procurements amounted to $1.2 billion but only about 11 percent of this amount was awarded competitively. Why can't an organization which deals mainly in spares and repair parts achieve a greater degree of competitive awards?

QUESTION: Is the Navy's demand for spares and repair parts so unique as to foreclose competition?

ANSWER: We are endeavoring to increase competition throughout Defense. However, there are many factors that influence our ability to achieve increased competition. The fact that the purchased item is a spare or repair part does not enhance its susceptibility to competition. Such factors as rights in data, start-up manufacturing costs, engineering criticality, stability of design, and other technical characteristics of the purchased item are controlling. Considering the nature of the items purchased by the Navy Aviation Supply Office, the aforementioned factors are extremely important. Aviation frame and engine parts, as a class, do not lend themselves to competition to the same degree as other kinds of items. This condition is not unique to the Navy. All services are taking action to improve the procurement of spare parts, regardless of the commodity. In the case of the Navy, an aggressive competition effort is now in operation. In accordance with its plans, the cognizant

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staff at the Aviation Supply Office has been increased by 25 percent with a dedicated staff to review parts with significant procurement value that have heretofore not been procured competitively. In addition, high-level management reviews have been instituted. Procedures for increased publishing of proposed procurements have been implemented. In addition, efforts are under way to improve the quality of technical data packages. These efforts should result in marked improvement in future Aviation Supply Office procurements.

Competitive Procurement of Spare Parts

QUESTION: DoD has argued that a lack of specification development has hindered further competition for spares and repair parts procurement. Why can't the Department prepare technical data packages on a more timely basis to guarantee competition?

ANSWER: Major efforts are under way to improve the development of specifications used on high dollar procurements that will facilitate the preparation of technical data packages. These efforts include the development of standardization documents through program plans and program analysis that are coordinated with industry to identify, schedule, and revise our Military Specifications, Military Standards, Data Item Descriptions, Federal Specifications, and Commercial Item Descriptions. Government participation in Voluntary Standards Organizations has also been emphasized so that their documents can be adopted and used by the DoD. Similar efforts are also under way covering lower dollar volume procurements, but this involves a management tradeoff of where to direct the cost-effective use of their limited available resources.

Contracting for Professsional and Consulting Services

QUESTION: The Committee is continually reminded of the long standing problem regarding DoD contracting for professional and consulting services. Would you care to comment on any remedial action to minimize the continued waste and mismanagement in this area?

ANSWER: The use of professional services is essential if the Department of Defense is to accomplish its mission. We would not characterize these services then as representing an area of continued waste and mismanagement, although examples of such conditions can always be found. We have or are taking the following actions to improve management control over these services: an individual has been selected to fill the newly established position of Director of Department of Defense Contract Studies and Management Support Services in the Office of the Under Secretary of Defense for Research and Engineering (Acquisition Management). The Director will serve as the focal point in the Department for policy guidance and management control improvements related to the use of these services. A management improvement and control plan for these services is being prepared. A revised DoD Directive on Contract Studies Management

was issued earlier this year setting forth policy guidance for the management, use, and control of contract studies. We are continuing to refine our procedures for accounting for the number and cost of studies, using the Special Budget Exhibit for Consultants, Studies, and Management Support and Professional Services (PB-21). We are in the process of improving (as part of the master plan for improving our management control over these services) our reporting system so that we can have an automated count of the number of contracts let for services, by whom, when, and the type of appropriation funds used. The Defense Acquisition Regulations (DAR) have been changed effective October 7, 1981, to reflect OMB's Circular A-120 (Guidelines for the Use of Consulting Services), the OMB letter of July 2, 1980, concerning management controls over consulting services, and the September 8, 1980, DoD guidance and instructions to the Services regarding these OMB publications. On June 8, ;1981, the Deputy Secretary of Defense issued a memorandum on controls over contracts for studies and analyses and management support services, including consulting services requesting each DoD Component to outline how they planned to control these services. The Component's responses were positive, supportive, and constructive. Many of their ideas and suggestions were used in the revised DoD Directive on Studies Management mentioned above and in the plan currently being developed to improve management control over these services. The 32-point initiative of the Deputy Secretary of Defense to improve the Department's acquisition process approved early in 1981 included these services within its purview. On September 9, 1982 the Secretary of Defense reiterated previous guidance about competition emphasizing that "no type of purchase is automatically excluded from this direction to maximize competition and this direction applies regardless of the level of the requesting official or the importance of the subject matter of the contract."

Determination of Need

QUESTION: DoD spent over $1.4 billion in fiscal year 1982 for a variety of professional and consulting services. A series of actual reports from the House Appropriations Surveys and Investigations staff, General Accounting Office (GAO), and the Defense Audit Service concluded that about two-thirds of the professional services contracts are sole source and nearly half are negotiated from unsolicited proposals. What is the Department's criteria for determing if these services are required?

ANSWER: Both the Defense Acquisition Regulation (DAR) and DOD Directive 5010.22 DoD Contract Studies Management contain guidelines and criteria for when it is appropriate to contract out and when it is appropriate to contract on a sole source basis. These guidelines include:

-- there is a reasonable expectation that these services can contribute information to or have a positive impact on DoD Component activities.

-- the effort does not duplicate work already done or underway.

-- the function being contracted is not purely a governmental function that must be performed in-house.

-- the need for these services is in the government's interest.

-- suitable in-house capability is unavailable, cannot be developed and used in a way and in time to meet the needs of the DoD Component concerned, or development of full time in-house capability would not be cost-effective.

-- every requirement is appropriate and fully justified in writing including a Statement of Need.

-- review by a senior official of all proposed contracts for $50,000 or more.

-- designation of a career SES employee or equivalent level military officer or civilian as an oversight manager in this area.

-- to the maximum extent feasible awards are made on a competitive basis. Secretary Weinberger reiterated this point about the need for competition in a memorandum dated September 9, 1982.

Conflict of Interest

QUESTION: Does it concern you that there may be a serious question of conflict of interest in that nearly half of all professional and consulting services contracts are awarded to former employees of the Defense Department?

ANSWER: Obviously conflict of interest charges are a very serious matter. However, we are not aware of any such charges currently or that the figure of "nearly half of all professional and consulting services contracts are awarded to former employees of the Defense Department" is valid. There is a fundamental difference between the charge of conflict of interest in a legal sense and the awarding of contracts to firms employing former DoD employees which is what this question implies. In the latter case we have strict guidelines and regulations addressing this situation.

Former Government employees will not be given preference in consulting and other service contracts. Further, DoD Directive 5500.7, Standards of Conduct, in addition to citing the various statutory prohibitions that apply to DoD personnel conduct,

states, among other things, that DoD personnel shall avoid any action that might result in or reasonably be expected to create the appearance of giving preferential treatment to any person or entity. It goes on to state that DoD personnel shall not knowingly deal on behalf of the Government with present or former, military or civilian, Government personnel whose participation in the transaction would be in violation of a statute, regulation, or policy set forth in the Directive. The Directive also includes a requirement that all DoD personnel shall be reminded at least semi-annually of their duty to comply with required standards of conduct. It should be noted, however, that former Government personnel provide a source of expertise that should not be overlooked. These personnel often seek employment with firms to utilize their experience. It would be to the Government's benefit to take advantage of their expertise as long as contracts are properly awarded and their rsponsibilities and conduct conform to statutory provisions and implementing regulations.

CONGRESSIONAL WITNESSES

STATEMENT OF HON. MAX BAUCUS, U.S. SENATOR FROM MONTANA

ARMY SCRAPER PROCUREMENT PROGRAM

Senator STEVENS. Now we want to turn to some of the policies of the past and instances that have been brought to our attention.

Senator Baucus brought to our attention the Army scraper procurement program. It is one of the Army's commercial construction equipments to replace its 10- to 20-year-old inventory of scrapers.

Senator, we are pleased to have you with us. I don't know whom you want to bring you with you. I understand that Senator Melcher may join you. Congressman Marlenee is here also. Let us hear from you and then we will hear from your colleagues. Then we have Mr. Dausman to follow the people who are with you.

Mr. BAUCUS. Mr. Chairman, thank you for the opportunity to appear today. The purpose of this hearing is to consider whether the Defense Department is obligating taxpayers' money in a fair and responsible manner in major procurements. If a current example involving a company from Montana is typical, it is not.

On August 13, 1982, the Army issued a solicitation for a 5-year purchase of over 1,000 commercial scrapers. The amount of the prospective contract's is expected to range from $150 to $250 million.

In any procurement, but particularly in one this large, we have to demand that the Defense Department exercise the greatest judgment and prudence in spending scarce dollars. That means achieving three objectives: Superior performance, the most reasonable possible cost over the life of the equipment, and delivery within a reasonable time.

Because the timeframe is less critical with off-the-shelf equipment like scrapers, performance, and cost require greater emphasis. Let's first look at performance.

Common sense dictates that, when buying standard equipment, the purchaser would look for function—in other words, can the machinery do X, Y, and Z?

That common sense approach has been implemented in this administration by Executive order of March 17, 1982. It specifically requires that solicitations be mission-specific, not equipment specific. In contradiction to this requirement, the Army's scraper solicitation is equipment-specific.

In particular, the Army called for scrapers with only two axles and which had limited self-loading. In short, the solicitation was limited to scrapers that must rely on an auxiliary vehicle called a pusher cat.

The effect of these requirements is to exclude all manufacturers of scrapers with different features—no matter how the equipment performs the mission of loading and moving dirt. Among those ex-

cluded is the Big Bud Tractor Co., of Havre, Mont., that produces a state-of-the-art scraper which has three axles and which is fully self-loading without an auxiliary pusher cat.

Despite numerous inquiries, the Army has never explained this specification in terms of performance. In fact, Army solicitations over the last three decades have never contained any axle specifications. Why now?

I believe the Army has simply become lazy. It is only interested in predetermined equipment. This is a hidebound, biased attitude—a willful resistance to innovation and competition.

In fact, the Army appears to have totally ignored Big Bud Tractors by excluding the company from the original solicitation list. And, since being contacted by Big Bud, the Army has resisted any demonstration of design improvements offered by the company.

LIFE-CYCLE COST ANALYSIS

The issue of cost is even more troublesome. The Army has decided only to consider initial acquisition costs—not total life-cycle or ownership costs. Life-cycle costs include the costs of acquiring, operating, and maintaining the equipment over its useful life. Life-cycle costs for defense systems can sometimes exceed acquisition costs by two or three times. For this reason, the Army's Commercial Construction Equipment Plan of December 1973 requires a life-cycle cost analysis wherever practical.

Originally, the Army contended that a life-cycle cost analysis was not practical. However, the Army undertook a preliminary analysis before issuing the solicitation. Therefore, it appears to be practical and appropriate. Furthermore, private contractors do consider life-cycle costs in purchasing machinery like this.

Even more importantly, a 1981 study performed by the Army for this type of equipment shows that life-cycle costs, measured in constant 1982 dollars, are 2.3 times the acquisition cost. If that estimate is on target, the life-cycle cost of this particular scraper could exceed one-half a billion dollars.

Surely it is imperative to compare the total cost of ownership among competitive bidders in a procurement of this size.

On the issue of cost, this solicitation is defective and biased for another reason. The evaluation does not consider the cost of the pusher cat. Not onlyh is this a foolish approach to cost management, it is inequitable to competitors like Big Bud whose scraper has built-in loading capacity.

Clearly my parochial interest in this matter is in seeing a Montana company given a fair shake. On a public policy basis, however, I simply cannot believe the refusal of the Army to consider life-cycle costs because regulations do not rigidly mandate such an analysis. This goes against commonsense.

Mr. Chairman, I have talked long enough to give you an idea of how significantly the Army has departed from sound business management and responsible procurement practices in this particular case. By avoiding fair and open competition, the Army has denied itself the opportunity to consider potentially superior equipment and obtain enormous cost savings.

In this case, I think that we can and should do more than talk. I do not believe that Congress should rush to intervene in every bureaucratic proceeding. However, I do believe that this committee has a justifiable interest in requiring the Department of Defense to spend its share of the budget productively and responsibly. With minimal cost and inconvenience, we can see that these objectives are achieved.

The Army can easily revise its solicitation to cure the defects. Function based specifications can replace equipment-specific requirements. An evaluation of life-cycle costs can be performed.

If Big Bud wins under a revised solicitation, I would be delighted; but if Big Bud Tractor loses a fair competition, that's fine too. The point is, Government procurement competitions should be fairly competitive and soundly evaluated. This one has not been.

Mr. Chairman, I know that I have made a number of claims without much substantiation because of the shortness of time. I have with me the president of Big Bud, Ron Harmon, who has a very brief video clip which will illustrate my statements. I would like to have him narrate this film. I know that it is the committee's practice not to have private contractors testify at this time. Mr. Harmon will only narrate the film.

Senator STEVENS. When Senator Melcher arrives we will take his testimony and put it in the record.

Congressman Marlenee, would you like to present a statement before we get to the film?

STATEMENT OF HON. RON MARLENEE, U.S. REPRESENTATIVE FROM MONTANA

OVERVIEW AND PROBLEM

Representative MARLENEE. Mr. Chairman, it is indeed a pleasure to appear before you and the committee to address the concerns of my constituent Big Bud Tractor Co., of Havre, Mont.

Overview—I have been working closely with Big Bud officials, Senators Melcher and Baucus, and Army officials regarding this matter. I therefore feel I have a good sense of what is at issue here and that is now what I would like to address.

Problem—Big Bud has charged that Army specifications relating to the solicitation are too restrictive, that total life-cycle costs have not been adequately considered, and that blatant favoritism has been shown to Caterpillar. I am concerned about these claims and I feel the Army's procurement process was not followed in this matter.

AREAS OF CONSIDERATION NOT AFFORDED BIG BUD

I want to briefly address three areas where I feel due process has not been followed and Big Bud has not been given fair and equal consideration and I think that is really all that this company asks is a fair and equal consideration in the bidding and specific processes.

First, that the Army specifications are restrictive in that they only allow for a two-axle scraper unit to be considered when in fact, Big Bud offers a completely new concept in three-axle scrap-

ers which have been proven in the field as the current state-of-the-art equipment. And, in many areas superior to the current two-axle scraper. Having observed some of the actions and some of the work done by the unit, I am sure of that feeling.

The Army, however, would not consider this and despite all the evidence presented, the Army still cannot justify why they prefer two-axles instead of three. In fact, the Army's argument on this very matter is based on obsolete information.

Also, the three-axle scraper unit which Big Bud has introducted does not rely on pusher cats as it is self-loading. I think this is an important point and important factor and most of you are familiar with the concept of the scraper and the cats that are needed to push them.

Those Caterpillar tractors are extemely costly pieces of equipment that they use. They are extremely costly. These were not taken into consideration in the cost analysis that was being done. I ask you this, why has the Army not even taken the time to look at Big Bud's equipment? I have been involved with this matter for many months now and the Army continues to refuse the suggestion that they evaluate and test our equipment.

Second, I have made several inquiries to high Army officials regarding the claims of Big Bud, Caterpiller, and the Army. And, to my disappointment, I have not yet received a satisfactory answer from them. This in itself is not consistent with Department of Defense contracting procedures. And, I might point out, that in March 1982 the President issued an Executive order calling for Federal procurement reforms and eliminating unnecessary specifications.

One might ask the question, and I wonder why the question is not asked, why do we continue to have inadequate procurement procedures which actually discourage competition, which is happening in this case in my opinion. They are actually discouraging the competition of a unit that could cost the Government several millions of dollars less than the one that is currently being considered by them.

Third, and perhaps most importantly, I am very concerned about the Army's seemingly lack of interest in total life-cycle costs. Time and again, my constituent has been told, by Army officials, that this was not really important to the Army.

LIFE-CYCLE COSTS

You know, when they make such statements as that I question their credibility. Life-cycle cost is important, manpower that it takes to operate this equipment is important. Yet we have heard them state that the number of people involved is not important.

Well, manpower is important and it costs the U.S. taxpayers a lot of money. Life-cycle costs are important. Those are taxpayers' dollars that they are using. I feel, Mr. Chairman, that these factors, these costs are very important and that the Army's attitude directly conflicts with the wishes of the Congress that we get the best product for the least amount of taxpayers' dollars.

I ask again, Mr. Chairman, why has the Army consistently ignored total life-cycle costs in this procurement? Why has the Department of Defense failed to carry out the wishes of the Congress?

Summary—Finally, it would seem to me that it is in the Army's best interests to give Big Bud fair consideration, which would mean eliminating the restrictive specification on the number of axles or tell us why they do not eliminate that restriction and looking seriously at total life-cycle costs.

I am not asking that the Army award the contract to my constituent, only that due process be followed and that they be given a fair and equal opportunity in this matter.

I want to thank you, Mr. Chairman, and members of the subcommittee, for your time this morning.

Senator STEVENS. Thank you very much, Congressman.

We now have our old friend, Senator Melcher.

Do you have a statement, Senator?

STATEMENT OF HON. JOHN MELCHER, U.S. SENATOR FROM MONTANA

Senator MELCHER. I have a statement that I would like to submit for the record.

Senator STEVENS. It will be printed in full. We will be glad to have you comment.

Senator MELCHER. I second what Senator Baucus and Congressmen Marlenee have told you. This is not a weapon that the military knows more about than anybody else. This is moving equipment.

What Big Bud would like to have and what anybody with any commonsense would like to have is a test on the ground. There is no reason why that should not be granted because the equipment is being used in private industry. They have made some inroads on sales.

Big Bud has proven to the satisfaction of some people who have to make their living and have payrolls to meet and stockholders to satisfy and profit and loss papers to fill out and demonstrate to the stockholders that they are using good judgment, and they passed that test.

What we would like to have is on-the-ground test where they actually use the equipment and the Army to view it and see what can be done and compare with what is being done in private industry and then make a decision and whatever decision they make after they have viewed it we will live with.

But when they refuse, on the basis of what to me seems just redtape, to have this on-the-ground test is nonsense. They can do it very easily. they have the equipment working right there in my own county, I am told, Rosebud County, where private companies have bought it and used it and like it and want to buy some more of them if they can make any profit out of mining coal in these strip mines.

That is all I have.

[The statement of Senator Melcher follows:]

PREPARED STATEMENT OF HON. JOHN MELCHER, U.S. SENATOR FROM MONTANA

Mr. Chairman, my remarks will be brief. I simply want to underscore the important points made by my colleague, Senator Baucus, and to add a very few words of

my own. As Senator Baucus has pointed out, the story of the Army's scraper solicitation reveals two glaring defects of the solicitation. First, the Army has essentially lifted specifications from existing equipment available from a few selected competitors, apparently without giving adequate consideration to whether those restrictive design requirements were necessary to accomplish the functional requirements of the equipment. Indeed, the Army has never been able to show that any functional relationship between these particular design restrictions and the mission of the scraper exists. Second, the Army has adamantly refused to take a life-cycle cost approach to this contract, despite the fact that such an approach is plainly feasible, is routine in defense procurement and in private-sector procurement of similar equipment, and could yield savings on the order of $200 million.

It should not be forgotten that, when the Army buys equipment and materiel, it is acting as an agent for the people of this country on whose behalf all our defense activities are conducted. When the Department of Defense so blatantly ignores its responsibility to spend the people's money prudently and save as much of it as possible, then we in Congress have a vital interest in seeing that corrective action is taken.

In short, I could not agree more with what Senator Baucus has said. I would also like to add a point of my own which is simple but, in my view, very important. This has to do with the issue of performance and the Army's obligation to buy superior performing equipment for the taxpayers' money. It seems to me that one of the best and simplest ways of determining whose equipment performs best is a comparative demonstration; simply try out all the competing scrapers and see which one best accomplishes its required function. I am aware that it is the intent of this Administration to reduce protracted testing before contracts are awarded, and that policy is certainly sound where such testing is extremely time-consuming and costly. But the kind of testing process I am talking about in the case of these earthmovers is simple and relatively cheap. I can see no reason why such comparative demonstration should not be done in all cases where, as here, the competing equipment is already in existence, demonstration is simple and practicable, and there are questions as to which equipment provides better performance. I might also add that Big Bud, on its own initiative, offered to place its equipment in exactly such a practical competition, but the Army steadfastly refused to take up this invitation. This is just one more example of the Army's intransigence and lack of responsibility. It simply cries out for correction.

Mr. Chairman, in conclusion, I can only say that I hope the examples presented here today are *not* representative of Defense Department procurement practices. In any case, I think it is our obligation to see that they do not become representative by taking some strong corrective measures. I join Senator Baucus in urging this Committee to press the Army to revise its grossly defective solicitation for earthmoving equipment. Our responsibility to the people of the United States who must bear the cost demands no less.

LIFE-CYCLE COST SAVINGS ESTIMATE

Senator STEVENS. Thank you very much.

We have Big Bud's estimate of life-cycle cost savings. Without objection, we are going to include those estimates in the record and we will ask the Army to analyze them and comment on them for us.

[The information follows:]

BIG BUD LIFE-CYCLE COST ESTIMATES

The figures submitted by Big Bud are not a total life cycle cost assessment, but are selected life cycle elements. They completely ignore other major life cycle cost areas, such as tire costs which is one of the major maintenance costs. Their cost analysis is based on unsubstantiated assumptions which are seriously questioned by the Army. Since Big Bud has never built a tractor-scraper of this size and configuration, it can only be assumed that the detailed performance data used in their cost comparison is based on estimates in lieu of hard performance data. The following pertinent comments are submitted in reference to their cost analysis (The Army references the Caterpillar Scraper only because that is the one used by Big Bud in its comparison):

1. Scraper Fuel Cost Savings.

The claim for fuel cost savings is based on a quicker cycle time for a sample work cycle established by Big Bud. Several factors make their analysis invalid:

a. Their sample work cycle is 2 to 3 times the length of the industry accepted average work cycle. Work cycles of this length would normally be performed by loader and the dirt hauled away on a truck. A shorter cycle (in distance) in scraper operations makes the loading segment more critical. Big Bud's loading time of 1.68 minutes and Brand X's time of 2.80 minutes are longer than loading times for a normal scraper cycle. That is why the "pusher" is required to reduce loading time to achieve the general industry standard of .5 to 1 minute.

b. Most haul cycles on road building projects involve minimum radius or U-turns on at least one end of the cycle if not both ends. Big Bud claims their machine travels faster in the turns whereas in reality the CAT could follow the same path at the same speed. Further, the sharper turning radius of the CAT would reduce the distance required to make a U-turn thus giving the time advantage to CAT.

c. The primary advantage shown by Big Bud is the "loading time". It is difficult to ascertain what Big Bud's self loading time really is. During their 28 Sep 82 visit to U. S. Army Mobility, Equipment, Research and Development Command they stated a self loading time of 2 to 3 minutes. Their proposal stated 1.68 minutes. Their 7 Jan 83 letter states their 400/2025 scraper can self load in 28 to 35 seconds. Their letter of 21 Jan 83 states that the earth boils over the scraper bowl sides within a few seconds. This raises the question - what is the real loading time of the Big Bud scraper in question (which has never been built).

d. Laws of physics dictate that performing an equivalent task with an adequate but lesser horsepower engine will require less fuel. The Army's experience with the existing fleet of 18 cubic yard tractors-scrapers proves that 400 flywheel horsepower for this size scraper produces a "high performance" type machine, which is not as fuel efficient.

2. Operator Cost Savings.

The Big Bud claim of operator cost savings is based on their claim of completing their sample work cycle 16% faster than the CAT machine. For the reasons stated above, it is doubtful that the Big Bud machine could complete the cycle any faster than the CAT machine; thus negating their claimed operator cost savings. Additionally Big Bud assumes 2000 work hours per year per scraper. The Army estimates, based experience that Peace Time

work hours will not exceed 1000 per year. Calculations show that if they can complete a cycle faster, the savings would be a maximum of .22 minutes per cycle. At the extreme estimate of 1000 hours operation per year for 1047 machines, this equates to a savings of $4002,046. Of course, this savings would be offset by higher fuel usage. (.22 min per cycle Big Bud's time saving)(1000 hrs)(15 yrs)(1047 units)(15 cycles per/hr)/12.95 min per cycle = $4,002,046(vs Big Bud's $75,384,000).
NOTE: The above calculation assumes a pusher is required; therefore loading time is the same. The only advantage results from climbing grades due to increased horsepower.

3. Pusher Fuel Cost Savings.

No cost savings can be claimed in connection with the Pusher requirement. In reality, the Engineer Battalions have a mix of construction equipment to do a variety of jobs worldwide. These include Crawler Tractors, Scrapers, Wheeled Loaders, Graders, Loader/Backhoes, and Dump Trucks in the earthmoving area. Only a small portion of the crawler tractor's total life will be taken in pushing scrapers. As stated above, under most soil conditions a pusher is necessary to load any and all open bowl scrapers within a cost effective time limit. It is estimated that only 5% to 20% of the utilization of the crawler tractors operation could be charged to scraper push loading. In the absence of convincing Commercial Operational Experience, that includes all soil types, Big Bud should not be credited with these savings.

4. Oil Changes Savings.

Big Bud is in error in stating 48 quart capacity for CAT 621B Scraper. The 621B has an engine lube capacity of 36 quarts. The Army changes oil based on an analysis of the used oil sample, and will change oil far less frequently than 100 hour intervals. Army fuel and lube experts state that assuming engines performing similar work cycles, one with 22% less capacity would require oil change 22% more often when changed by the "as needed" oil analysis method. Thus, oil savings can be expected to be zero.

5. Crankshaft Replacement Savings.

Diesel engines are not rebuilt or repaired extensively by the Army while installed in the vehicle. Crankshaft replacement is not a common event. It would be extremely unusual to replace a crankshaft during the life of an engine.

6. Hydraulic Pump Replacement Savings.

Big Bud is incorrect in their statement that the pump is changed at 2000 hour intervals. It is the filter and hydraulic oil that is changed each 2000 hours. Army experience with thousands of pieces of earthmoving equipment with current state-of-the-art hydraulic systems shows that frequent pump replacement is not necessary. A reasonable estimate is two replacements during the life of the machine. Big Bud has offered no evidence why their pump service life or ease of replacement should be any different than other machines.

7. Design Load of Engine

Big Bud is incorrect in statement of engine horsepowers. The CAT handbook states that the 3406 engine used in the 621B is designed at 400 Horsepower at 2100 rpm. As used in the 621B, it uses 330 Horsepower at 1900 rpm. Big Bud's Detroit Diesel is designed at 430 Horsepower. Comparing these two on equal terms, the CAT is designed for 400 Horsepower and the Detroit Diesel for 430 Horsepower. Big Bud will use 400 Horsepower of the total 430 Horsepower (or 93%) available in the Detroit Diesel. CAT is using 330 Horsepower of the 400 Horsepower (or 83%) available in

the 3406 engine. By this method of comparison, Big Bud will be using 93% of the design HP of the Detroit Diesel while CAT will be using 83% of the design Horsepower of their engine. Thus, the service life of the CAT engine can be expected to be better than the Detroit Diesel. Since the CAT engine will not work as hard to do the same amount of work.

8. Utilizing the above industry standards, factors developed by extensive military and commercial user experience, plus the erroneous assumption that the fuel rate of a higher horsepower engine doing more work will be the same as a smaller horsepower engine which will accomplish the same task it can be seen that the cost savings claimed by Big Bud are for the large part non-existent.

9. A cost analysis includes all cost factors. Big Bud has chosen only those which they claim in their favor. In addition to the higher acquisition cost, consideration of their extra drive line components, extra differential assembly, two extra planetary drive assemblies, and two extra tires would show a decided cost advantage in favor of the two axle scraper design.

2.4.1 Observed Performance

We consider the primary test of whether or not the Big Bud product is worthy of acceptance by the Army is the ability of our scraper to "move dirt." Where our units are working, our customers are more than satisfied with our product's performance.

A summary of the use of some of our scraper systems in several locations and detailed letters attesting to such performance are included in the Appendix 2, Exhibit "I."

The power unit's performance has been attested to for considerably more years, and a summary of that performance is Exhibit "I" in Appendix 2.

2.5 ECONOMICS

We recognize that the solicitation does not ask for information on life cycle cost considerations. However, Big Bud believes its scraper to be superior to competing equipment, expecially in life cycle costs. Life cycle cost considerations based on improved design have been one of the keys to our success in penetrating the commercial market. Realizing this, we believe we would be doing ourselves and the Army a significant disservice by not providing data relevant to life cycle costs. (Exhibit "J," Appendix 2)

Because the Army has not provided standards to which relevant life cycle cost factors may appropriately be compared, or a preferred life cycle cost analysis methodology, we have selected standards for purposes of illustration. More specifically, for the areas and factors listed below, projected Big Bud scraper costs are compared to the Caterpillar 621B. The Caterpillar equipment was selected because Caterpillar is well known in the industry, and because performance information on the 621B is readily available. To facilitate the illustration, all comparisons are based on a useable equipment life of fifteen (15) years and operation of the equipment for 2000 hours/year, or a total equipment life expectancy of 30,000 hours, which is the figure used in the following comparisons.

All of the unit costs in the following cost analysis are taken directly or extrapolated from publication furnished by the manufacturers,

(i.e., Caterpillar, Detroit Diesel, etc.). These publications, such as owner manuals, sales brochures, parts catalogs, manufacturers' flat rate repair times, and so forth, are available from the manufacturer on request by any potential large scale user. Supplementary information can also be gained from public testing laboratories and other public agencies. In addition, companies such as Detroit Diesel produce, and have available, charts showing comparative costs for parts and flat rate times for all the elements of every diesel motor produced in quantity in the United States. Similar information is available for other major equipment components.

Life cycle costs consist of three general categories: (a) capital investment, (b) operating and (c) upkeep costs.

(a) Capital investment costs include research and development as well as acquisition costs of the equipment minus the residual value at the end of the cycle.

(b) Operating costs are all those costs arising from operating the equipment during the life cycle.

(c) Upkeep costs are all those costs needed to keep the equipment up to operating standards during the operating life of the equipment.

The following analysis does not have any elements addressing capital investment costs as this is covered in the cost of the equipment.

OPERATING COSTS

The Big Bud scraper significantly out-performs the Caterpillar 621B in both fuel and operation costs. As reflected in the Selected Haul Profile Chart (Exhibit "J1") and Fuel Consumption Chart (Exhibit "J2") on the following pages, the fuel consumption of Big Bud is 3.18 gallons per cycle and the Caterpillar 621B uses 3.52 gallons per cycle. The difference, when compared to the 621B cycle consumption, amounts to 10.5% savings in fuel. The product of this factor and the 16.4 gallons per hour consumption, as shown in the Caterpillar Company's published Fuel Consumption Chart of the 621B, amounts to 1.72 gallon per hour savings by the Big Bud scraper.

This can easily be expanded into a life cycle cost benefit as follows:

1.72 gals. x 30,000 hrs. x 1047 scrapers = 54,025,200 gals.

Assuming diesel fuel cost at $1.00 per gallon, this would amount to a $54,025,200 life cycle cost benefit of the Big Bud scraper over the Caterpillar 621B.

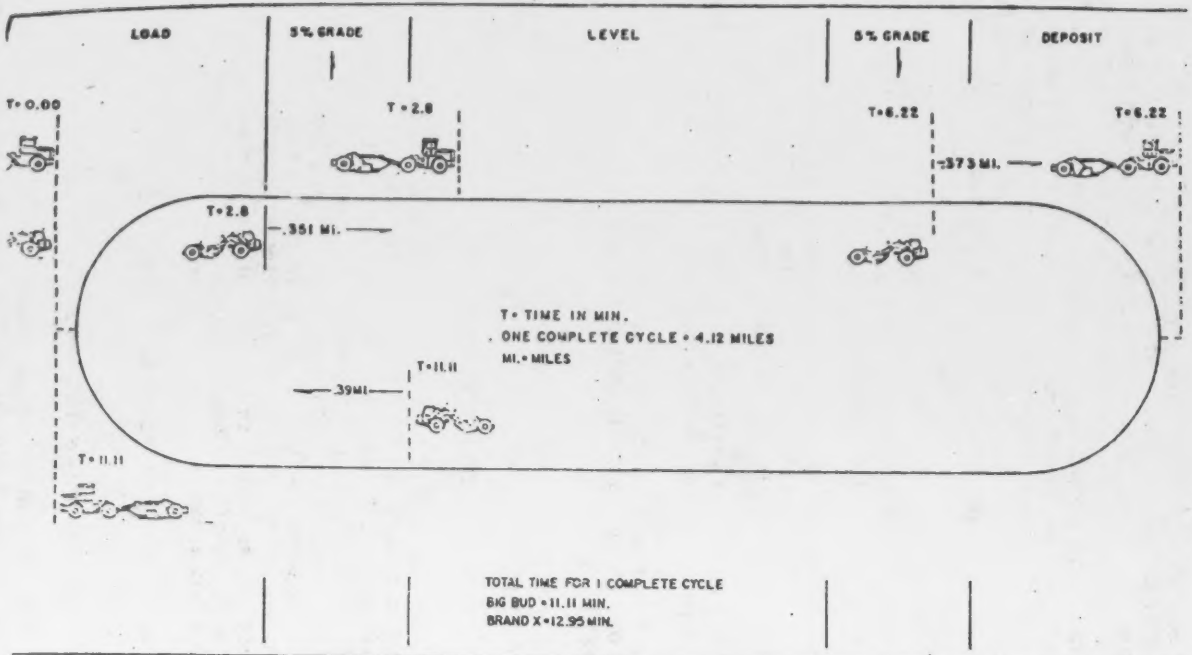
Moreover, the Selected Haul Profile Chart shows that a Big Bud scraper can haul 16% more dirt than a Caterpillar 621B. Assuming a $15.00 per hour wage (including salary, fringe benefits, retirement, etc.) for the operator, another life cycle cost benefit for the Big Bud scraper can be figured as follows:

$15.00/hr. x 16% x 30,000 hrs. x 1047 scrapers = $75,384.00.

This is an additional life cycle cost benefit of the Big Bud scraper over the Caterpillar 621B.

In addition to the foregoing direct cost comparisons, there are other cost differences which are significant.

HAUL PROFILE CHART



NOTE: Chart shows both interim and total times taken by two (2) scrapers operating through a load, haul, deposit and return cycle over a given haul profile. As the 621 B completes the cycle, Big Bud has completed $\frac{12.95}{11.11} = 1.1656$ cycles. Hence, a 16% increase. Speeds through the cycle were determined from the Manufacturer's Performance Charts as advertised.

EXHIBIT J2

FUEL CONSUMPTION CHART

(NOTE: Top figure is Big Bud; bottom figure is Caterpillar.)

	LOAD	5% UP	LEVEL	5% DOWN	DUMP & TURN	SUBTOTAL
Distance, Feet	750	1320	5280	1320	750	
Time, Minutes	1.68 / 2.80	1.25 / 1.36	2.00 / 2.00	.47 / .50	.94 / 1.18	6.34 / 7.84
Gear	2 / 1	5 / 5	8 / 8	8 / 8	4 / 4	
Speed, MPH	5 / 3	12 / 11	30 / 30	32 / 30	10 / 8	
Fuel, Gallons	.66 / .83	.33 / .36	.53 / .53	.13 / .13	.25 / .31	1.90 / 2.16

	TURN	5% DOWN	LEVEL	5% UP	TURN	SUBTOTAL
Distance, Feet	750	1320	5280	1320	750	
Time, Minutes	1.15 / 1.36	.47 / .47	1.87 / 1.87	.79 / .88	.49 / .53	4.77 / 5.11
Speed, MPH	13 / 11	31 / 31	31 / 31	19 / 17	17 / 16	
Gear	5 / 5	8 / 8	8 / 8	6 / 6	6 / 6	
Fuel, Gallons	.31 / .36	.13 / .13	.50 / .50	.21 / .23	.13 / .14	1.28 / 1.36

Bud 23.7 GPH to Load 16.0 GPH Remainder.

Cat 17.8 GPH to Load 16.0 GPH Remainder.

Total Fuel	BUD CAT	3.18 Gal. 3.52 Gal.	TIME	11.11 Min. 12.95 Min.

NOTE: Chart shows by profile element and total, the fuel consumption of the two (2) scrapers compared on the accompanying Haul Profile Chart as they moved through one complete 4.12 mile cycle.

As an example, the Big Bud scraper fully self-loads under typical construction conditions. Other scrapers do not. In a fifteen (15) minute haul cycle, four 621B's will require the assistance of one pusher. Assuming a D7 Caterpillar pusher is used, fuel consumption of the pusher will be ten (10) gallons per hour (as reflected in Caterpillar literature). Thus, for each hour of 621B operation an additional two and one-half (2 1/2) gallons of diesel fuel is needed by the pusher, which can be figured as follows:

2.5 gals. x 30,000 hrs. x 1047 scrapers = 78,525,000 gals.

Again, assuming diesel fuel cost at $1.00 per gallon, this is a $78,525,000 life cycle cost benefit of the Big Bud scraper over the Caterpillar 621B. Furthermore, this does not even consider the additional wages required for the operators of the needed pushers.

UPKEEP

Service: Big Bud's engine is a Detroit Diesel 8V92TA with a crankcase capacity of twenty-six (26) quarts. The 621B's 3406 engine has a forty-eight (48) quart capacity, a twenty-two (22) quart difference. Both Army regulations and industry practice require an oil change for every one hundred (100) hours of operation. Hence, the saving in quarts of oil can be figured as follows:

22 qts. x 30,000/100 hrs. x 1047 scrapers = 6,910,200 qts.

Assuming oil at 70 cents per quart, this savings in oil amounts to a $4,837,140 life cycle cost benefit of the Big Bud scraper over the Caterpillar 621B.

Repair: All manufacturers publish tables showing the flate rate (man/hours) needed for replacement of various parts. It takes 18.5 hours to replace a crankshaft in a Detroit Diesel 8V92TA and 33.3 hours to do the same for the Caterpillar 621B's 3406 engine. This is a difference of 14.8 hours of mechanics' and shop time and, parenthetically, 14.8 hours when the unit is not available for use. The hours quoted are taken from the two manufacturers' published flat rate time quotes. Assuming $15.00 per hour for a mechanic's time and a crankshaft replacement every 10,000 hours or a total of three, (3) times during the equipment life expectancy, the savings in mechanics wages can be computed as follows:

3 changes x 14.8 hrs. x $15.00/hr. x 1047 scrapers = $697,302.

In other words, almost a $700,000 cost benefit of the Big Bud scraper over the Caterpillar 621B.

To use a second example, the hydraulic pump on a Big Bud scraper can be changed in one hour, it takes eleven (11) hours to change a Caterpillar 621B's hydraulic pump: the recommended hydraulic pump change cycle is once every 2000 hours of operation, that is, once per year for each of the fifteen (15) years of expected use. Hence, the following savings:

15 changes x 10 hrs. x $15.00/hr. x 1047 units = $2,355,750.

This is merely one more example of how the superior design of the Big Bud scraper will produce significant life cycle cost benefits over the Caterpillar 621B.

The results of the foregoing examples can be summed up as follows:

Life Cycle Cost Example	Big Bud Benefit
Scraper Fuel Cost Savings	$54,025,200
Operator Cost Savings	$75,384,000
Pusher Fuel Cost Savings	$78,525,000
Oil Changes Savings	$ 4,837,140
Crankshaft Replacement Savings	$ 697,302
Hydraulic Pump Replacement Savings	$ 2,355,750
Big Bud benefits over the 621B =	$215,824,392

STRUCTURAL LIFE

Structural life of the unit, of course, is a factor in both capital investment and upkeep costs as it determines both the incidence of repair and the length of the life cycle. While no one can predict, with certainty, the effective life of any single unit, fleets will average out to typical lengths of life that can be predicted. These estimating practices are the result of studies based on the combined experiences of users over a period of years.

Most component and material failures are the result of repetitive stresses over long periods. In principle, if the stress is equal to the design strength of the component, a failure will result much sooner than if the stress is less than the design strength.

Consequently, if two pieces of equipment are subjected to the same stresses, that piece which has the higher design capacity will have the longer life. Following is general rule as developed by studies of past experiences and commonly used by mechanical engineers to determine fatigue life under different operating stresses:

Life at a design load = 100% of fatigue life

Life at 110% of design load = (1/1.1) or 62% of fatigue life

Life at 90% of design load = (1/0.9) or 169% of fatigue life

The Detroit Diesel 8V92TA is rated at four hundred thirty (430) HP and is designed throughout to meet four hundred thirty (430) HP stresses. The 621B's engine is rated at three hundred thirty five (335) HP and so designed. Under similar dirt moving operations, both will be subject to about the same stresses, consequently, the Detroit Diesel is operating at about 70% of design load. Utilizing the formula provided above (1/0.7) the Big Bud tractor's parts and unit will experience a life expectancy approximately six times greater than fatigue life, and a very low incidence of repair.

In summary, may we repeat, this is not a complete cost analysis; but, as stated above, it is illustrative of the life cycle benefits of the Big Bud equipment, and it is a major reason that we have been able to compete successfully in the commercial market. There are obviously several additional life cycle cost factors which could be considered, including such items as engine overhaul costs, reduction of Army inventory investment due to use of parts which are nationally stock numbered and/or already in the government inventory, pusher investment costs, cost availability of pushers for uses other than assisting scrapers, interest costs associated with increased operating costs, opportunity costs, potentially reduced personnel costs, and others.

Finally, it is our view that the Army should complete a life cycle cost analysis of each competitor's product prior to awarding the

scraper contract - as the commercial market realizes operation and maintenance costs are as real as acquisition costs. Life cycle costs can easily be developed using readily available data which can be obtained from the maufacturers' brochures and/or independent testing laboratories for the asking. We are confident that an objective and complete analysis of life cycle costs will demonstrate Big Bud's superiority in this area over all competing scrapers.

Senator STEVENS. We have a joint statement by Senators Percy and Dixon which they have asked us to print in the record. We will print that in the record at this point following the statement of Senator Melcher.

Mr. Harmon, it is a little unfair to our audience, but you can have a private showing for them back there. Let us see it here for the time being and you show us what you have.

NONDEPARTMENTAL WITNESSES

BIG BUD TRACTOR CO.

STATEMENT OF RON HARMON, PRESIDENT, BIG BUD TRACTOR

VIDEO PRESENTATION

Mr. HARMON. Basically we have equipment running in Wyoming. There happen to be two-axle scrapers there as well as our own. We show them loading as well as we have some shots of our equipment with attachments on it. With that I will start.

What we are seeking there, Senator, is an example of our equipment loading, the scraper there. It just happens to be a scraper train where we actually hoop up more than one scraper. In this procurement equipment we have a smaller engine being a power unit only one scraper. In this we are pulling two.

With this I start with certain areas I will speed to, to try to save some time.

Senator STEVENS. How long is it?

Mr. HARMON. About 3 or 4 minutes.

This is an example of the way the unit loads. It does load without being push-assisted. The important thing here is that in a matter of cost and time we can self-load, enter the area and unload without having to be push-assisted.

With that I am going to run through this area to another segment.

This another example of loading. The first unit has now been loaded. The second unit is being loaded. Again I state that we are quoting one scraper here with a smaller engine.

This is an example of a two-axle scraper here that is waiting to be pushed. It is in the foreground. The two pushers are backing up getting ready to push it. We are hauling about 47 yards of dirt here at a time. We hook as many as four of these together as a matter of fact under one power unit.

I will again speed it ahead here.

This is a two-axle scraper. It is now being push-loaded, as an example here, with the pusher cats. Again I believe the two-axle system that we are talking about here may not be necessarily two, it may need only one. We found in just about all cases the pusher cat is needed on a two-axle system. That is really the reason why we designed our system to get away from this very costly process.

Now with that I am going to stop here and go back—somehow my film got ahead of me—and show you a view of the tractor in the submitted applications. This is again loading. I am going to speed through this area.

This is an example of our tractor inside our plant where the cab tilts up 90 degrees to give easy access to all major components of

the tractor such that in field breakdown and so on you can get at it quickly. This is unique in the industry. We don't know anyone that does this. We do this as a cost-saving feature. We feel it is very, very important to keep the equipment moving.

I will now speed to this area. This is an example of the power unit with the dozer on it. We feel that a three-axle system allows for different uses of the power unit where if you had a two-axle system, this is not available to you.

You can see the plate on the back of the tractor where the scrapers are attached and you can use it to pull scrapers and/or dozer and so on. Sometimes this particular unit is compared to older three-axle systems. I would say that the design differential, the only thing that could be compared is three axles. Really it is a totally different unit

ADDITIONAL ATTACHMENTS FOR POWER UNIT

Senator STEVENS. Are there any other attachments that go with this?

Mr. HARMON. There are numerous attachments that are available for the power unit, really depending on what a person would like. The dozer and scraper are the two primaries.

This is inside the cab. You have the two joy sticks there where you operate the scraper. Our primary thing here is safety so that you can swivel and look 360 degrees while in the cab.

One of the things we found in this unit is ease of operation because we have had many operators that have only run it for a short period of time and became very efficient. So we think it is a good environment in that respect.

I will speed through this and end up on where we are loading again. Again this is an example of loading, self-loading, and now we are getting ready to load the second scraper.

I will speed through this very quickly again.

Thank you.

Senator STEVENS. Thank you very much, Mr. Harmon.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE ARMY

RESEARCH, DEVELOPMENT, AND ACQUISITION

STATEMENT OF GEORGE E. DAUSMAN, ACTING DEPUTY ASSISTANT SECRETARY FOR ACQUISITION, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT, AND ACQUISITION), DEPARTMENT OF THE ARMY

ACCOMPANIED BY BRIG. GEN. PHILIP MASON, DIRECTOR, COMBAT SYSTEMS, OFFICE OF DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT, AND ACQUISITION, DEPARTMENT OF THE ARMY

REQUIREMENTS FOR 2-AXLE SCRAPERS

Senator STEVENS. Good morning, Mr. Dausman, and good morning, General.

Mr. DAUSMAN. General Mason is with me this morning, sir. We are delighted to be here.

Senator STEVENS. Let me inquire, Senator Melcher, you did not have anything else?

Senator MELCHER. No, Mr. Chairman. Thank you very much.

Senator STEVENS. Can you tell us about these guidelines, the Executive order that has been mentioned and the specific requirements for two-axle scrapers in this case?

Mr. DAUSMAN. Yes, sir, I can respond to that.

I wonder if I could have an opportunity to put this procurement into perspective with regard to the competitive aspects and the industrial base to tell what we are crying to accomplish overall. We in the Army are very proud of this procurement, this four-part procurement.

The scraper is one item that we are buying is very large quantity. We are also buying a loader, buying a grader, and buying a compressor/pheumatic tool assembly.

There are four major pieces of construction equipment that we are buying in this current commercial construction equipment program. Three of those have already gone to award. They were awarded in January of this year. The fourth one, the scraper, is bogged down now because of the challenges of Big Bud and others.

We are proud of these becasue they are all competitive procurements. We are leveraging on the commercial marketplace. We are seeing prices in these procurements that are beyond our wildest expectations. We are getting good solid competition.

We have restricted these procurements to the United States mobilization base so that these items, once they are competitively awarded, will be produced in the United States or Canada.

We are also addressing our total requirement for each one of these pieces of equipment and we are buying them all out in the

single contract that we award for each one. Thereby we will simply logistics training with commonality by item across the fleets of graders, compressors, loaders, and scrapers.

MULTIYEAR CONTRACTS

These are multiyear type contracts. However, I hasten to add they do not have EOQ advanced procurement, they do not have unfunded cancellation ceilings, they are just straight out multiple-year contracts that give us the opportunity to buy our total requirement.

We are saddened that the fourth member of this program is delayed now by what I will call a parochial challenge. The other contracts were awarded to Case for the loader, Ingersol-Rand for the compressor and Caterpillar for the grader. They fought hard and competitively and, as I say, the prices we achieved were far below our initial program estimates that go back a couple of years.

We are seeing the same type of competition in the scraper program. We have five bids for the scraper, Big Bud plus four others.

Now let me talk about the requirement and how we are leveraging these on the commercial marketplace.

NONACCEPTABLILITY OF BIG BUD

Senator STEVENS. Did Big Bud bid on scrapers?

Mr. DAUSMAN. Big Bud bid only on the scrapers. They are utilizing an agricultural tractor and adapting it to a scraper role.

Senator STEVENS. How could that happen if they have three axles and yours is a two-axle requirement?

Mr. DAUSMAN. They did bid, but they were found not to be acceptable. They did not comply with the specification and they were so notified. They are no longer in competition.

Senator STEVENS. How can you tell us they bid when the specification says you have to have two axles and they have just shown us they have three axles? You can't tell me they bid when you rejected their bid?

Mr. DAUSMAN. They did, sir, and we did subsequently reject it for three reasons, sir.

It did not comply with the technical specification that said it must have two axles. They had three axles.

We also had a requirement which we consider the most important requirement in this procurement, that it be a commercial item and that it be in use for 1 year prior to the submission of the bid. Their item is unique. It is not in commercial service in the capacity that we are interested in in this procurement.

BOWL CAPACITY OF BIG BUD SCRAPER

Senator STEVENS. What is that capacity?

Mr. DAUSMAN. Fourteen to eighteen cubic yards capacity in the bowl.

Senator STEVENS. The ones you buy have to be pushed by two Caterpillars?

Mr. DAUSMAN. The competitors require a single pusher.

Senator STEVENS. Did you include that in this bid, the other Caterpillar? Is that part of the bid cost?

Mr. DAUSMAN. The solicitation did not require the bidding of the pusher.

Senator STEVENS. How can you have a scraper if you have to have a pusher that you are not buying?

Mr. DAUSMAN. That is a subject of a separate procurement. The scrapers are available where these construction projects are occurring.

TWO-AXLE SPECS ON BID

Senator STEVENS. How did the two-axle specifications get into the request for bid?

Mr. DAUSMAN. Let me address that.

We have in our inventory now, sir, a three-axle scraper. The Army has several hundred of them. They were supplied by a variety of manufacturers. They are quite old. They are 18 to 20 years old.

Several years ago this program to upgrade our scrapers was initiated and a rather extensive survey was made of what is being used in the commercial marketplace. What are the contractors using? What is being offered? Our survey indicated, and this survey was finalized about September 1981, that all major manufacturers of scrapers and all large users of scrapers have gone to two-axle configuration.

It is the view of most of the construction community that the three-axle configuration is antiquated technology. All other bidders in the scraper competition bid two axles. In fact, they have no three-axle scrapers in their product line regardless of capacity, I am told.

This is the current state-of-the-art. The commercial marketplace, the folks concerned about the bottom line profit, have all gone to two-axle scrapers.

Senator STEVENS. But since they are going to sell a scraper and a pusher, I can understand why. You are buying two rather than one unit, aren't you?

Mr. DAUSMAN. We are buying in this particular procurement only the scrapers. The pushers which are graders are already available within our inventory.

CAPABILITY OF TWO-AXLE SCRAPERS TO DO JOB WITHOUT PUSHERS

Senator STEVENS. Can these units you are buying perform the function without being pushed by another unit?

Mr. DAUSMAN. Under proper conditions where the terrain is soft that we are scooping, where the wheels of the vehicle have traction, where there is no mud or other conditions that will lead to slippage, they can do their own scooping, but the preferred method is to use the pusher. The scraper lasts longer when you use the pusher.

The tractor that pulls the scraper goes back to an idle configuration, almost idle. All it does is provide directional control. All of the push comes from the pusher. You save the engine and you

save, more importantly, the tires of the tractor that is pulling the scraper.

The vehicle that does not use the pusher we feel is going to be handicapped when the terrain is slippery. We don't think it is going to have the traction to dig where it is other than loose terrain, as you saw in the video tape this morning, and it is going to wear out its tires.

You could not see in that video tape particularly the wheels of the tractor are spinning, there is slippage, there is wear. Gentlemen, the tires for those large wheels are very expensive.

Senator RUDMAN. Senator, would you yield for one moment?

Senator STEVENS. Yes.

Senator RUDMAN. Isn't that easy to prove at Aberdeen or anywhere else? Isn't that very easy to prove?

Mr. DAUSMAN. Yes, sir.

Senator RUDMAN. Then why don't you prove it?

Mr. DAUSMAN. Gentlemen, we attempted to use the leverage of the commercial marketplace. We feel that that marketplace has already proven what the best solution to this problem is. They have gone to two axles. They use pushers.

We are doing nothing different. We do it worldwide. We do it in snow, we do it in ice, we do it wherever the battle may develop. But it is basically moving dirt like commercial contractors.

ACQUISITION OF 2-AXLE SCRAPERS

Senator STEVENS. How many of those are you acquiring?

Mr. DAUSMAN. There are 1,047 in this particular procurement and there is 100 percent option built into this contract.

Senator STEVENS. How many are made in the United States annually? Do you have any idea?

Mr. DAUSMAN. I do not have that figure, sir. We will have to provide that for the record. We will do that.

[The information follows:]

TOTAL SCRAPER SALES

Based on current Industrial Reports, U.S. Department of Commerce, Bureau of Census, SIC 3531, Construction Machinery, total scraper sales for 1980 and 1981 are 2571 and 2403 respectively. This includes scrapers of all sizes made in the United States, including those exported. The report does not differentiate sales by scraper size.

NECESSITY FOR DEVELOPMENT PHASE

Mr. DAUSMAN. The important part is that commercial equipment program precludes the necessity for a development phase with the risk and the cost attendant thereto. It precludes the preproduction testing and sorting out amongst competitors which one is best, which one has problems.

The commercial marketplace has done that for us. That is why we are moving in this direction. It is the state of the art.

I did not mention the cost which is the third reason that the Big Bud bid was set aside. I have the costs for all the bidders. It is competitive sensitive which I cannot reveal in this forum.

However, let me say that Big Bud's bid was the highest cost of five bids we received. They are nearly twice as high as the low

bidder, nearly twice as high on an acquisition unit cost basis. That is the scraper alone. I am not addressing the pusher or life-cycle cost, but on a unit-per-unit basis Big Bud is nearly twice what the low bidder is.

LIFE-CYCLE ANALYSIS

Senator STEVENS. That is like telling me you ought to price the railroad on the basis of what the engine costs. I really don't understand. Have you done a life-cycle comparison of these bids, leaving out the two-axle requirement?

Mr. DAUSMAN. In evaluating these bids we did not do a life-cycle analysis. However, in the survey phase about 3 years ago there was life-cycle analysis done. We used the results of our field survey, going out to visit construction sites and contractors who build scrapers.

We secured all available data with as much data as was available in regard to cost, reliability, maintenance, et cetera, and we did do what we call a worst-case, life-cycle cost analysis. We estimated what it would cost to buy and field and operate for 15 years this fleet of scrapers.

The purpose of that analysis was to address the question of affordability. Is that the desired course of action versus living for another several years course of action versus living for another several years with our inventory of obsolete equipment, patching it, fixing it as required to keep it operating?

MISSION ANALYSIS OF COST

Senator STEVENS. What comes to my mind is the argument we have over C-5's. I can understand now why in order to take a scraper overseas we might have to have outsize equipment because we have to take two Caterpillars along with it to push it.

Did you do a mission analysis of cost, cost analysis of a mission involved here is terms of the total equipment that would be used?

Mr. DAUSMAN. Not to my knowledge, the overall mission.

Senator STEVENS. Isn't that what the Executive order says now, this administration has insisted on mission bidding?

Mr. DAUSMAN. The Executive order that has been referenced calls for more effective satisfaction of mission needs.

Senator STEVENS. Could you do the work without the other two pushers? Could you do any job in the world without the pushers?

Mr. DAUSMAN. The mission here is to move dirt, to build roads, build runways. The most effective way to move dirt is with a state-of-the-art scraper. You don't look at alternative ways to move dirt, I don't believe, in this situation.

Senator STEVENS. Senator Rudman.

COMMERCIAL TEST OF SCRAPERS

Senator RUDMAN. I really have only one question.

You said that you tried to go out into the commercial market and purchase those things which are commercially available, commercially acceptable and work well in the private sector. We can't

criticize that certainly. We encourage that. We have been encouraging that for quite some time.

My question is simply this: Assume you go into the commercial market and there are several standards that most of the major companies are using and a company says it has a better mousetrap. Don't you feel some obligation to assume that, as so often happens in this country, a particular company may have something that although it does not comply with the standard, may in fact be better than the standard?

These gentlemen may be completely wrong in claiming that their three-axle unit is state of the art. They claim it is superior. They claim in the way it has been designed, it works better. It may be a totally wrong marketing claim. It may be completely wrong.

What about spending a few hundred million dollars, if there is something that does deviate from the norm and with the enormous testing ability that the Army has to go out and at least prove that to your own satisfaction?

Mr. DAUSMAN. Sir, I think we have within the Army satisfied ourselves that this is the appropriate course of action for this procurement. We do have three-axle graders in the inventory. We know what they will do.

As a matter of fact, sir, I understand the video tape that you viewed was a competitive demonstration and as a result a competitor's piece of equipment was procured, which I find interesting.

ARMY ONSITE INSPECTION

Senator RUDMAN. Has the Army gone out onsite, sent an individual onsite to watch this piece of equipment operate that this company claims is superior?

Mr. DAUSMAN. Not to my knowledge.

Senator RUDMAN. You know, Mr. Dausman, with the amount of money we spend for travel down there, and it is enormous, it seems to me that you could afford a $400 round trip ticket for some colonel that knows something about graders to go out and see what these fellows are saying. Then you could say here this morning "We sent somebody out, we have looked at it, their claims are false. This is why they are false."

We believe you, we have a lot of faith in the Army, but when you have someone who claims to be building something that is state of the art you have an obligation to look at it.

We are not telling you to buy it. Because at least four other companies are doing the same thing. I can show you in the industrial history of this country where one company brought a product in which made obsolete the other products in the market.

It seems to me at least you have an obligation to see whether these people are talking through their hats because we are talking hundreds of millions of dollars a year. We are not talking about expensive tests. We are talking about looking around the field. That is all we are asking for.

Mr. DAUSMAN. If I may respond to that, the challenges from Big Bud and their congressional delegation developed after our solicitation was on the street. We were in the procurement process, we were in the competitive mode.

I would suggest visiting any one of the competitors to look at their equipment would be viewed as anticompetitive by the other bidders.

Senator RUDMAN. I don't believe the taxpayers would mind that.

Senator STEVENS. You put in the two-axle requirement, to begin with, Mr. Dausman, so that is not a valid comment. You judged the state of the art, somebody in the Department of Defense did. The Department of Defense put the two-axle requirement in there.

You can't say we can't go out and look at the state of the art because you already stated what the state of the art is. You excluded anything else.

Mr. DAUSMAN. Sir, we did do that. It was an extensive survey. There were no three-axle graders being utilized or produced at the time of our survey which was completed in about September 1981. For us to initiate some other course of action would smack of a development program, a testing effort, and would extend the acquisition cycle for some badly needed equipment.

We think we have made the right judgment in this matter.

Senator STEVENS. Let me tell you from where I sit you have not included the two-axle scrapers, you have not included the cost of three operators instead of one. You may have a point about the first, there may be a negative aspect about the first. We don't know about the durability of this, that is true.

But if you add it all together, there certainly ought to be a sufficient reason to pursue the course that Senator Rudman has suggested and that is to evaluate this new unit, because if you don't, we are going to hear about it for a long time.

My feeling is that we are liable to hear about it again this year and we don't like to see decisions made on the floor of the Senate that prohibit you from going ahead and awarding a contract at all.

Don't forget the amendment offered would have shut off all four equipments because it was a line item and we would have lost three others as well as this one because someone refuses even to examine into this scraper on the basis of fairness.

I am not so sure about your lawsuit. I understand my staff and the Senators from Montana and Congressman Marlenee from Montana have some questions. We would appreciate it very much if you would respond to those questions as quickly as possible in whatever timeframe they set on it because I don't want to see situations where we lose three other valid bids because of an unwillingness to be at least open about the basis for competition.

To me it is not competition to say that we have a bid, but they bid knowing they had a three-axle piece of equipment. As I count it, as you look at those two other pushers, that one you have out there, you really have six because it needs four other axles in order to make it load. I am not so sure that the ones you have are responsive because they do not appear to be self-loading.

As I understand the specifications, they had to be self-loading. Up my way if you have to haul around two extra Caterpillars in order to make one of these scrapers work, it would really affect the life-cycle cost of it, I can tell you that.

Senator D'Amato, do you have any questions about this?

Senator D'AMATO. No questions.

Senator RUDMAN. I would like to ask for the record that Senator Baucus or Senator Melcher supply for the record some documentation from this company to back up their claim that what they have is state-of-the-art equipment because obviously we have a total conflict in testimony this morning, Mr. Chairman.

Obviously we don't know which is correct. The Army says that the state-of-the-art is two-axle equipment, three-axle equipment was built 20 years ago and it is obsolete. This company has invested an enormous amount of money developing three-axle equipment which it says is state of the art.

Somebody is wrong. I would like to find out which. Could we have that for the record, Mr. Chairman? We have documentation already from Senator Baucus. If there is anything that will enhance this, I would like to look at it.

C–5A'S CAPABILITY TO TRANSPORT EQUIPMENT

Senator STEVENS. I would like to look at it to see the cost of hauling this equipment in C–5A's including the two pushers. I would like to see other people look into self-loading scrapers. I can't agree that they are self-loading.

Mr. DAUSMAN. I don t believe there was a requirement that they be self-loading. They all have some self-loading capability. I am told with regard to the pushers that it is one pusher for each five scrapers in an operation situation. It is five to one.

Senator STEVENS. You may have a point. I am not making a judgment on whether those life-cycle costs are as represented by the film.

You realize how many more C–5B's we have to build if we need those two pushers for every one of those scrapers that we are going to send somewhere someday, unfortunately, if we have to do it?

Mr. DAUSMAN. One comment about the C–5.

There is a requirement that these be C–5 transportable. It is interesting that the three-axle represents 30 percent more cubage requirement on that C–5 than does the two axle.

Senator STEVENS. Mr. Dausman, how can you say that when you have to put two other cats behind them in order to make them work? That is my point. It is about 60 percent more space for one that is not self-loading.

PUSHER REQUIREMENT FOR BIG BUD

Mr. DAUSMAN. In the situations that we will be operating in worldwide, Big Bud is going to need a pusher also. It has a pusher requirement. It has a pusher plate on the back. In our view it is going to require a pusher.

Senator STEVENS. We would like to see an analysis. We do appreciate your courtesy. We again request that you respond to the questions. We have this amendment coming back up under the agreement we have and I don't want to see it happen if we can possibly avoid it.

Mr. DAUSMAN. One more comment, sir.

Senator STEVENS. Yes, sir.

Mr. DAUSMAN. They have protested to the GAO, Big Bud has, and also to the U.S. Claims Court. both of those bodies have this

matter under review. We anticipate a GAO decision probably next week, I believe February 7.

The court has indicated they will take some action within 15 days after that decision is available. So there are two bodies also looking at this issue.

Senator STEVENS. I know an amendment is coming that will change the whole procurement package if we don't get some resolution of this. So I urge you to respond to our request.

Thank you very much.

ADDITIONAL COMMITTEE QUESTIONS

The subcommittee has developed a set of questions to be submitted for your response for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

SUBMITTED QUESTIONS

Question. What guidelines do you have to determine adequate levels of competition in a particular procurement program
ANSWER. Defense Acquisition Regulation provides guidelines relative to the dissemination of proposed procurements and determination of adequacy of competition. DAR 1-1001 discusses dissemination, and is further discussed under question 2. DAR 3-101 provides that negotiated procurements shall be on a competitive basis to the maximum practical extent and offers shall be solicited from the maximum number of qualified sources. Guidelines concerning adequacy of competition are stated in DAR 3-807.7(a)1 as follows:

Price competition exists if offers are solicited and (i) at least two responsible offerors, (ii) who can satisfy the requirements, (iii) independently contend for a contract to be awarded to the responsive and responsible offeror submitting the lowest evaluated price, (iv) by submitting priced offers responsive to the expressed requirements of the solicitation. Whether there is price competition for a given procurement is a matter of judgment to be based on evaluation of whether each of the foregoing conditions is satisfied. Generally, in making this judgment, the smaller the number of offerors, the greater the need for close evaluation.

Question. How did you specifically apply the guidelines to the Army Scraper?
ANSWER. Every attempt was made to stimulate competition. A Market/User Survey was conducted in August 1981 determining that there were at least three commercial available machines meeting the Army's validated requirements which could be procured competitively. The draft vehicle specification was circulated to industry for comment in September 1981. Prior to issuing the solicitation a bidders mailing list was compiled consisting of all known manufacturers of scrapers in the size and configuration meeting the Army's validated requirement as reflected in the vehicle specification. Additionally, the solicitation action, as required by DAR 1-1003 was synopsized in the Commerce Business Daily prior to release of the solicitation.

Price analysis and technical evaluation was conducted on offers received. The Contracting Office has determined that the same conditions concerning adequacy of price competition in DAR 3-807.7(a)(1) are met in that (i) more than two responsible offerors (ii) satisfying the DA validated requirement technically (iii) independently contended for this contract to be awarded to the responsive and responsible offeror submitting the lowest evaluated price, (iv) by submitting price offers responsive to the expressed requirement of the solicitation. Additionally, the Government received significant discounts off the vehicle's commercial list prices in "1982 /green Guide for Construction Equipment" published by Data Quest, Incorporated. These discounts far exceed those offered for similar items in the past or what the Government had anticipated. Hence, it is concluded that an atmosphere of intense and effective competition exists and this competition is determined to be "adequate" as defined by DAR.

Question. "I understand an initial market survey was made of the Scraper - that to determine the range of available products. Why did you conduct the survey and what did you learn?
ANSWER. An initial market survey was conducted, not to determine the "range of available products", but to confirm that there existed, in the commercial market-place, a scraper which could meet the Army's requirements as stated in the Required Operational Capability (ROC). The survey was conducted in accordance with the Army policy as outlined in the May 1980 Interim Guidance implementing Draft Chapter 6 of AR 70-1. This chapter of the regulation prescribes the procedures to be followed in order to determine whether a requirement is to be fulfilled with either a development item or a non-development item in the particular case of the Scraper, the Army was confident that a non-development item could satisfy the ROC, since Scrapers existed in commercial industry. With the premise that the Army could perform tactical missions with the same equipment utilized by civilian contractors, the decision was made through the In-Process Review (IPR) to buy a commercially available 14-18 Cu. Yd. Scraper with proven market experience to satisfy the requirement. The market survey confirmed there existed proven commercial equipment in the marketplace, and that there existed more than one manufacturer who could satisfy the requirement. The market survey is not intended to be all inclusive, but to the extent necessary to confirm commercial equipment is available to satisfy the Army requirement. There is no requirement to identify all candidates, only that there exists sufficient candidates upon which a competitive procurement can be fostered. Hence this survey confirmed that the Army need not go through a development and testing phase where the Government would incur additional cost and risk and prolong the fielding of this critically needed equipment.

Question. "Is it true Big Bud was not considered in the Army's preliminary analysis of potential offers? Why? Didn't that exclusion unjustifiably restrict competition?
ANSWER. Big Bud was not considered in the Army's preliminary analysis, i.e., market survey, because they did not commercially market a Scraper in the 14-18 Cu Yd capacity. The market survey is not to be construed as a mechanism to restrict competition. The market survey was conducted to confirm that there existed proven commercial equipment in the market-place, and confirmed that there existed more than one manufacturer upon which competition could be fostered. Therefore, the Army's process of conducting market surveys to confirm availability of equipment which meets the Army's requirements does not unjustifiably restrict competition. Here the "Commercially Marketed" is significant. Since this acquisition approach relies on the Commercial Market-place to determine the acceptance of the equipment, it was essential that potential suppliers have marketed the equipment with the required performance parameters. Big Bud had not, and still has not, produced scrapers in the 14-18 cu yd capacity range. The units that Big Bud cited for their market experience with their proposal were units of 20 cu yd capacity which use different components than those offered in its proposal.

Question. "The Army Airborne and Airmobile Engineer Units now use a four-wheel tractor and a separate four-wheel Scraper. If such a configuration is acceptable today, why is the three-axle approach proposed by Big Bud unacceptable?"
ANSWER. This four-axle version is no longer acceptable for Army use and is being replaced. The four-axle configuration was accepted by the Army in the late 60's because it was most easily adapted to sectionalization at that time into two small loads for helicopter transport and for airdrop. A contract was awarded in July 1982 to replace these Scrapers with a commercially proven, two-axle self-propelled Scraper.

Design Features 3 Axle Scrapers

Question: I have heard it argued that two axle scrapers are at the fore-front of technology while the three axle scraper design is not. Are there any innovative design features in the Big Bud three axle design which are new?
Answer: The Army is not aware of any innovative design features.

Question. Why was the "product experience requirement" included in the specification? Doesn't that also needlessly restrict competition?
ANSWER. Through the product experience requirements, the Government obtains assurances of commercial acceptability. The product experience requirement does in fact limit competition through its exclusion of products which have not been accepted in the market place. But this is a reasonable exclusion and limitation upon competition, and is necessary unless the Government is willing to run the risk of an unproven product, or to invest time and money in a Government development program.

Question. "I understand that the issue of transportability and compatibility with existing Army heavy equipment trailers was not included in the specifications. Why?"
ANSWER. The characteristics of commercial scrapers of this size and type were considered in development of the specification. Transportability of the Scraper was a logistics matter considered as part of the program decision. A Transportability Review was conducted by the Army and it was determined that specific dimensional limitations were unnecessary because by specifying two-axle commercial equipment transportability by trailer was assured. In addition, the product experience clause assured a commercially-proven Scraper.
"What was the impact of this exclusion?"
As stated above, by specifying two axles and a product experience requirement, we insure the transportability requirements are met by the commercially available scrapers meeting the specification. As a result, there was no effect in not including specific dimensional restrictions.

Question. I know that Life Cycle Costs (LCC) are a major consideration in Pentagon procurement policy. Yet it appears that LCC were not considered in the scraper program. Why?
ANSWER. Life Cycle Costs (LCC) were considered in the scraper program. A LCC analysis was completed as one of the elements to be considered in preparing the Required Operating Capability (ROC) document. The analysis is attached as an appendix to the

ROC. Once approved by the Army Leadership the ROC becomes the Army's statement of need. LCC was again considered at the In-Process Review (IPR) where the decision was made to buy commercial instead of under taking a developmental program to fulfill the Army's need. It was determined at the IPR that the commercial market had equipment that could fulfill the Army's need. Buying commercial eliminates a costly and lengthy development program and capitalizes on the benefits of the market place. Buying commercial has proved extremely cost effective.

Question. "We are told by contractor spokesman that savings of $250 million or more may be achievable with the use of the Big Bud Scraper. Is that a valid claim?"
ANSWER. Big Bud alleges a savings of $215 million; however, their claim is considered invalid. Big Bud claims the following life cycle cost advantages:

a. Alleged Scraper Fuel Savings: This is based on the assertion that the Big Bud Scraper will have better engine fuel economy and that it will have a superior cycle time. Big Bud, with its larger engine, will certainly use more fuel than two-axle Scrapers. The claim of superior cycle time is based on self-loading of both the Scrapers. The Army does not expect to self-load in normal operation. Self-loading of an open bowl Scraper, either two-axle or three-axle will not be efficient in most soil conditions. In addition Big Bud's cycle time will be slower than that of the two-axle Scraper due to the lesser mobility of the Big Bud Scraper.

b. Alleged Operator Cost Savings: As stated above, Big Bud scraper will not have greater productivity, but will probably be less productive. Any operator cost savings will be in favor of a two-axle Scraper.

c. Alleged Pusher Cost Savings: Both require pusher tractors for efficient operation in most soil conditions. The pusher costs will be the same.

d. Alleged Oil Change Costs, Hydraulic Pump Replacement Costs, Crankshaft Replacement Costs: The oil change costs will depend on replacement intervals which will be determined by the Army Oil Analysis Program. Engines with a larger oil capacity will normally require fewer oil changes. The hydraulic pump and crankshaft replacement intervals claimed by Big Bud are unrealistically high. The Army has no valid data with which to verify these claims. The Army notes there are a number of very significant costs that are not included in the Big Bud life cycle cost comparison which would not be in Big Bud's favor, such as initial acquisition cost and tire costs.

Question. "Explain why on a $255 to $280 million program, savings of this magnitude should not be considered."
ANSWER. As demonstrated above, there are no apparent life cycle cost savings with the Big Bud Scraper. Use of the Big Bud Scraper would appear to result in higher life cycle costs. It is totally against all logic to conclude savings of this magnitude on the say of a manufacturer who has never made a machine of the size required and few of any size.

Question. "What would be the impact if the Army had to amend the Scraper solicitation to remove the restrictive specifications and then to consider all potential and competitive candidates within the context of life cycle costs?"

ANSWER. The amendment of the specifications to allow Big Bud's proposed 14-18 Cu Yd Scraper would cause extensive delay in procurement without savings. The current solicitation would have to be canceled. The Required Operational Capability (ROC) and specifications would have to be rewritten. Testing requirements would need to be redrawn to allow for verification of scrapers lacking proof of commercial acceptability, and extensive reliability, maintainability and durability testing would have to be conducted. We do not believe the end results could be changed. All this to consider a less maneuverable, less adaptable, less transportable scraper (3-axle) which is behind the current State of the Art and for which the Army does not have a requirement. It is estimated that these activities would delay contract award by 24 months or more.

Question. "On the basis of your knowledge of the Scraper Program and the competition to date, do you think such a more competitive program would change the ultimate winner? Please explain."
ANSWER. As previously stated, price competition on this acquisition has been intense and effective, resulting in significant discounts off suggested retail prices of the commercial machines offered. A change to the product experience qualification or specification would essentially change the procurement method from a Non-Developmental Item (NDI) Acquisition to a Research and Development type effort allowing assemblages of components requiring formal source selection procedures and extensive preproduction and acceptance testing. The result would be more manufacturers offering unproven equipment for Government evaluation and testing. The leading manufacturers of commercial Scrapers would likely have a competitive advantage over manufacturers with less expertise. Therefore, one would anticipate that more competition would not effect the ultimate winner, but would result only in higher overall risk, acquisition costs and delay associated with the additional testing required by R&D acquisitions.

Question. "Finally, I note that by comparing your 1984 and 1983 budgets there has been a decrease of 106 scrapers in the first three years of the program for about the same money. That is between a 10 and 15% cost increase. That is disconcerting when we supposedly have effective competition. Can you explain that change?"
ANSWER. The quantities in the FY 84 President's Budget were inadvertantly changed. Based on the award made for other Combat Construction Equipment (CCE) Standardization items the Army expects the unit price to be less than that reflected in the FY 84 President's Budget Request

QUESTIONS SUBMITTED BY SENATOR INOUYE

Question. Why were "equipment specific" specification requirements, permitting only companies having two axle scrapers, developed and issued with this solicitation in violation of Presidential Executive Order 12352 dated March 18, 1982, which mandates the use of functional specifications?
ANSWER. The specification for this procurement was written to describe scrapers which is commercially available in the 14-18 Cubic Yard size and are not narrowly drawn. At least three competitors were known to produce scrapers which could meet Army requirements. When the survey was conducted, Big Bud was not considered because they did not manufacture a machine in the size category required by the Army. They have built and sold 20-Cubic Yard machines in very limited quantities (13 domestically and 3 additional world-wide for a total of 16 according to their proposal). To date, the Army has not been provided with any commercial sales or other data which indicates Big Bud has sold any scrapers in the 14-18 Cu Yd size. The specification is written to encompass the performance requirements of the commercially available scrapers in the 14-18 Cubic Yard size, which by commercial design are scrapers with two axles, meeting the ROC requirement.

Question. In light of the obvious requirement to reduce the federal deficit, associated pressure to reduce defense appropriations, Army policy to include life cycle cost considerations when procuring commercial construction equipment, congressional concern over the growing military operations and maintenance budget, and the fact that industry considers such costs when purchasing such equipment, why does the Army refuse to include life cycle costs in its evaluation of contractor's proposals - particularly when savings of $250,000,000 or more may be realized?
ANSWER. Big Bud alleges a savings of $215 million; however, their claim is considered invalid. Big Bud claims the following life cycle cost advantages:

a. Alleged Scraper Fuel Savings: This is based on the assertion that the Big Bud Scraper will have better engine fuel economy and that it will have a superior cycle time. Big Bud, with its larger engine, will certainly use more fuel than two-axle scrapers with smaller engines. The claim of superior cycle time is based on self-loading of both the scrapers. The Army does not expect to self-load in normal operation. Self-loading of an open bowl scraper, either two-axle or three-axle, will not be efficient in most soil conditions. In addition Big Bud's cycle time will be slower than that of the two-axle Scraper due to the lesser mobility of the Big Bud Scraper.

b. Alleged Operator Cost Savings: As stated above, Big Bud scraper will not have greater productivity, but will probably be less productive. Any operator cost savings will be in favor of a two-axle Scraper.

c. Alleged Pusher Cost Savings: Both require pusher tractors for efficient operation in most soil conditions. The pusher costs will be the same.

d. Alleged Oil Change Costs, Hydraulic Pump Replacement Costs, Crankshaft Replacement Costs: The oil change costs will depend on replacement intervals which will be determined by the

Army Oil Analysis Program. Engines with a larger oil capacity will normally require fewer oil changes. The hydraulic pump and crankshaft replacement intervals claimed by Big Bud are unrealistically high. The Army has no valid data with which to verify these claims.

e. The Army notes, there are a number of very significant costs that are not included in the Big Bud life cycle cost comparison which would not be in Big Bud's favor, such as initial acquisition cost and tire costs.

Question. What logical basis is there for the Army to assert, as I understand it has elsewhere, that ancillary equipment essential to effective operation of conventional two axle scrapers should not be included in any life cycle cost analysis which is accomplished - that seems as valid as saying that one need not consider the cost of an air compressor when considering the purchase of a jack hammer? More specifically, since "pusher cats" are essential to two axle scraper operation, and are not needed with the Big Bud three axle scraper, why wouldn't "pusher cat" costs be included in any life cycle cost analysis which was accomplished?
ANSWER. It is the Army position that both two and three axle scrapers require pusher tractors for efficient operation in most soil conditions. Therefore, operational cost associated with "pusher cats" would be the same regardless of whether a two axle or three axle scraper is used.

Question. Why was Big Bud not considered in the Army's preliminary analysis of potential offerors?
ANSWER. Big Bud was not considered in the Army's preliminary analysis, i.e., market survey, because they did not commercially market a Scraper in the 14-18 Cu Yd capacity. The market survey is not to be construed as a mechanism to restrict competition. The market survey was conducted to confirm that there existed proven commercial equipment in the market place, and confirmed that there existed more than one manufacturer upon which competition could be fostered. Therefore, the Army's process of conducting market surveys to confirm availability of equipment which meets the Army's requirements does not unjustifiably restrict competition. Here the "commercially marketed" is significant. Since this acquisition approach relies on the commercial market place to determine the acceptance of the equipment, it was essential that potential suppliers have marketed the equipment with the required performance parameters. Big Bud had not, and still has not, produced scrapers in the 14-18 cu yd capacity range. The units that Big Bud cited for their market experience with their proposal were units of 20 cu yd capacity which use different components than those offered in its proposal.

Question. When Big Bud made its interest in this solicitation known to the Army, what actions did the Army take to familiarize itself with the company's equipment and any life cycle cost advantages that equipment might offer?
ANSWER. Big Bud made its interest in this solicitation known to the Army in September 82. At that time, they briefed Army organizations (Tank-Automotive Command, Mobility Equipment Research & Development Command and the US Army Engineer School)

on their product. Big Bud was questioned as to their ability to comply with the product experience and specification requirements of the solicitation, since they advised they had not built or sold a 14-18 cu yd scraper. The Army did review the commercial literature presented by Big Bud and concluded that Big Bud did not apparently meet the product experience or specification requirements.

With regard to life cycle costs, we did review the various claims by Big Bud. Savings based on the Big Bud position that they do not need a pusher tractor for loading were questioned. We found nothing in their presentation to substantiate that the Big Bud scraper could efficiently self-load (i.e., without a pusher) under the varied world-wide conditions encountered in Army use, thereby eliminating those savings. Additionally, their analysis ignored the significantly higher acquisition costs and support costs (such as tires) of the Big Bud equipment. Utilization rates were also overstated. Information received as part of the Big Bud proposal and GAO protest was later reviewed but added nothing to support their claim for life cycle cost savings. Additionally, life cycle costs could not be fairly evaluated on a Big Bud scraper that had never been built in this size. The DAR does not require life cycle costs to be an evaluation factor for contract award. The GAO protest decision agreed.

Question. What would the impact on the Army be if the Congress were to direct the Army to amend the solicitation to relieve the existing unnecessarily restrictive specifications, to conduct an independent assessment of life cycle cost considerations in the proposal evaluation process and to conduct such independent and/or competitive tests of Big Bud and other equipments as may be needed to ensure that its requirements and specifications accurately reflect the current state-of-the-art and technology in scrapers?

ANSWER. The amendment of the specifications to allow Big Bud's proposed 14-18 Cu Yd Scraper would cause extensive delay in procurement without savings. The current solicitation would have to be canceled. The Required Operational Capability (ROC) and specifications would have to be rewritten. Testing requirements would need to be established to allow for verification of scrapers lacking proof of commercial acceptability, and extensive reliability, maintainability and durability testing would have to be conducted. We do not believe the end results could be changed. All this to consider a less maneuverable, less adaptable, less transportable scraper (3-axle) which is behind the current State of the Art and for which the Army does not have a requirement. It is estimated that these activities would delay contract award by 24 months or more.

CONGRESSIONAL WITNESSES

STATEMENT OF HON. ALFONSE M. D'AMATO, U.S. SENATOR FROM NEW YORK

F-100 SPARES

Senator STEVENS. Now we turn to Mr. D'Amato's item on the F-100 spares.

Senator, do you have a statement to make?

Senator D'AMATO. Mr. Chairman, I have a statement which I would like to submit for the record in its entirety. I welcome the opportunity to address this matter and thank the chairman for holding this hearing today. This case identifies serious flaws in the method by which contract policies and procedures are implemented in these hard economic times when we are attempting to maximize our dollars for Federal defense procurement.

I think that this case points out some deficiencies. It involves a small company, B. H. Aircraft, that has manufactured aircraft parts since 1983, and even provided parts of the Lindbergh family.

B. H. now provides parts for United Technologies. In their attempt to submit a bid on this Air Force spare parts procurement to become a qualified bidder and, by what would appear to be not only recalcitrance, but a conspiracy, very strong language, a conspiracy, they have been precluded from any reasonable attempts to participate in the procurement process.

I must indicate that I believe the Air Force was negligent, or, indeed, derelict in not seeing that something was dramatically wrong. So that we can get into the heart of the matter, let me simply say that in 1980 a product called an augmentor divergent nozzle segment which previously had sold for some $1,017.36 per part, 13 months later when it was next procured rose 143 percent with the bids came on at $2,469.

Whereas the bid in 1980 was for approximately 200 of these parts, the Air Force is now procuring some 14,000. No appreciable increase in labor, and no increase in terms of the cost of the materials had occurred in the interim.

B. H. Aircraft faced veiled threats from employees of Pratt & Whitney and the Air Force, in their attempt to qualify as bidders. They were threatened and they were told they might be violating the law by seeking to become qualified.

This committee has saved some $6.4 million by reducing the Air Force spares procurement account as a result of this. These parts are used in the most sophisticated of our Nation's Air Force planes. I just think that this case is absolutely totally shocking. This is the great swamp of waste, fraud, and abuse, it seems to me, in Air Forces spare parts procurement.

PREPARED STATEMENT

Mr. Chairman, I ask that my statement in its entirety be included in the record.

Senator STEVENS. We will do that and print your statement in full in the record, Senator.

[The statement of Senator D'Amato follows:]

PREPARED STATEMENT OF HON. ALFONSE D'AMATO, U.S. SENATOR FROM NEW YORK

Mr. Chairman, I welcome the opportunity provided by today's hearing to explore certain aspects of Defense Department contracting policies and procedures. I am convinced that aggressive congressional oversight in this area will pay great dividends. We must make sure, in these hard economic times, that this Nation's taxpayers receive a dollar's worth of defense for every dollar we spend on defense.

Today, we will review one specific case which has already saved the American taxpayer $6.4 million. This is the case of B. H. Aircraft Company, Inc., and their fight to save the Air Force money through their efforts to sell the Air Force a vital part at greatly reduced cost.

Since 1981, B. H. Aircraft has been attempting to sell augmentor divergent nozzle segments to the Air Force for its high performance F-100 fan jet fighter engine. B.H. has not yet succeeded in selling a single part to the Air Force, but their story will be told here today and may help us, if we learn its lessons, to save many millions in the future.

The F-100 engine is manufactured by Pratt & Whitney, a division of United Technologies, Inc. This engine powers two of this Nation's best fighter aircraft, the F-15 Eagle and the F-16 Falcon. These aircraft are the U.S. Air Force's front line fighters, warplanes which proved their worth in combat last year over the Bekaa Valley when, in the hands of the Israeli Air Force, they destroyed a large part of the Syrian Air Force in fierce air-to-air battles.

The Air Force has a continuing need for augmentor divergent nozzle segments. This part fits on the back end of the thrust augmentor, the part of the jet engine we used to call an "afterburner". They move in response to the pilot's changes in throttle position, moving in or out in the jet engine's flaming exhaust to open or close the nozzle. This part is critical to the engine's performance. If it failed in combat, we could lose a pilot and an aircraft. Because it operates in the very flame of the engine's exhaust, it must be able to withstand very high temperatures for long periods of time without failing. Clearly, this part must be made to the highest standards.

Since these parts are gradually eroded and cracked through their exposure to the superheated engine exhaust, they must be replaced when sufficiently worn. On November 18, 1981, the Air Force San Antonio Air Logistics Center at Kelly Air Force Base published in the *Commerce Business Daily* its intention to solicit bids from the only two approved manufacturers of this part for a minimum purchase of 14,029 nozzle segments. The two approved sources for the parts were listed in that advertisement as Pratt & Whitney, United Technologies Corporation, West Palm Beach, Fla., and N.V. Phillips, of the Netherlands.

B. H. Aircraft, a small, high technology firm located in Farmingdale, on Long Island, N.Y., was searching for new business when that advertisement was published. B. H. is an old line aviation company. It was founded in 1933, and has been owned by the same families since then. The company manufactured special fuel tanks for Charles A. Lindbergh's Lockheed Sirius aircraft. Lindbergh and his wife used this plane to pioneer commercial air routes across the Atlantic in 1933. It may be seen today on display in the National Air and Space Museum.

In recent years, the majority of B. H.'s business has been as a supplier of jet engine components to Pratt & Whitney, when commercial aviation business began to go bad, B. H.'s board of directors decided to begin attempting to secure direct government contracts for jet engine spare parts and component parts. B. H. made this decision because Pratt was keeping its dwindling business in its own shop. B. H. also was aware that Pratt would not take kindly B. H.'s attempt to move from being a supplier to being a competitor.

B. H. decided to bid on this Air Force divergent nozzle segment procurement because they felt they could underbid both Pratt and N. V. Phillips. they reached this conclusion because they discovered the price the Air Force was paying for this part had increased by an amazing 143 percent over only a 13 month period! The Air Force had paid $1,017.36 per segment on its last order, for 210 segments, in 1980,

but had paid $2,469.00 per segment on its last order in 1981, an order for 6,543 segments. This astonishing $1,451.64 price increase per segment attracted B. H.'s attention. It should have attracted the Air Force's attention as well. B. H. also had reason to believe that it could beat Phillip's labor costs. B. H. was concerned primarily about Phillips, because Phillips had won the last six procurements for this part. That is another point the Air Force should have noticed.

B. H. was confident it could compete with these two industrial giants of the western world because B. H. had supplied similar parts for other Pratt & Whitney jet engines in the past, and were specialists in the precision welding the fabrication of this part required. B. H. also determined that it could obtain the honeycomb metal blanks called "stress skin" and the castings from which the part was fabricated from the same suppliers who supplied both Pratt and Phillips. That way, they could be sure they had first rate material.

First, though, B. H. had to become an approved supplier for the part. They made contact with Air Force officials and began a chain of events which leads to the present day and the hearing we have now begun.

When the bids on the procurement closed, B.H. had not become an approved source for the part. B.H., however, bid anyway. If that bid had been accepted, there is reason to believe the Air Force could have saved more than $16 million in the taxpayer's money.

Certain officials within the Air Force and certain other individuals associated with Pratt and Phillips did their best to insure that the arrangement which had produced that astonishing 143% price increase were not disturbed. There appears to have been a criminal conspiracy of some sort which defrauded the Government of at least $6.4 million dollars and perhaps much more. Worse, there are indications that this problem is not restricted to this one part. There are similar price movement and bid irregularities involving a number of other F-100 engine parts.

Today, we will explore the sequence of events and decisions which B.H.'s decision to compete for this procurement triggered. I believe this case is representative of a specific type of contract fraud and abuse which is draining the taxpayer dry without buying any improvement in our national defense. I look forward to discussing with Mr. Maese, the Deputy Director of the Directorate of Materiel Management at the San Antonio Air Logistics Center, the circumstances of this particular case.

Both the criminal division of the Department of Justice and the office of the assistant to the Secretary of Defense for oversight and review (soon to be the Inspector General) have investigations underway at this time into this matter. A federal grand jury has been convened in Miami, Fla. and one is in prospect in Hartford, Conn., to look into aspects of this case. I understand indictments may be forthcoming.

Let me note that my discussion with Mr. Maese this morning will be only the beginning of this Senator's efforts to insure a thorough public review of this serious problem, a problem which I became aware of and began working on when B.H. aricraft visited my office last May. I have since written on B.H.'s behalf to the Secretary of the Air Force, and members of my staff have followed closely the progress of the ongoing investigations. When the grand juries have completed their work, I will ask the chairman to allow me time during our further hearings on Defense Department spare parts procurement practices to insure that the whole story of this affair becomes public.

I commend the chairman for giving me the opportunity to pursue this case. I thank him for his support and for the support of the subcommittee staff, Mr. Sean O'Keefe in particular, in enacting a $6.4 million reduction in the Air Force's F-100 spares account as part of the fiscal year 1983 Defense Appropriations bill. I look forward to joining with the chairman and the staff in working to get to the bottom of this mess. It may be that we have found the famous "swamp of waste, fraud and abuse" after all.

Thank you, Mr. Chairman.

COST INCREASES IN ENGINE PART

Senator STEVENS. Let me say it is my understanding from the staff that between 1980 and 1982, May 1980 and July 1981, the average price of this single F-100 engine part increased from about $1,000 to $2,500. During that period a new contractor was selected even though his price was about $500 per unit more expensive.

It is also indicated that there has been an award of a portion of these spare parts to a foreign competitor although B. H. Aircraft

was disqualified because it did not have prior Air Force approval as a manufacturing source despite its presence on the American market for so many years.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENT OF F. E. MAESE, DEPUTY DIRECTOR, DIRECTORATE OF MATERIEL MANAGEMENT, SAN ANTONIO AIR LOGISTICS CENTER, KELLY AIR FORCE BASE, TEX.

ACCOMPANIED BY BRUCE RICHTER, DEPUTY CHIEF, PROPULSION DIVISION

Senator STEVENS. Mr. Maese, that is what we would like to have you tell us. What is the situation on this one?

Mr. MAESE. Yes, sir. If I may, sirs, I would like to introduce Bruce Richter, professional engineer and executive manager of our propulsion systems.

Senator STEVENS. It is nice to have you here.

Mr. MAESE. The prices that have been referred to are a fact, the price range that has been thrown out from 1980 to 1981 is between $1,000 and $2,500. Initially Pratt & Whitney was the prime contractor, was the sole source of the item.

Subsequent to that we followed the precept in Air Force Regulation 57-6 on competitive breakout and Pratt & Whitney helped in the qualification of the Phillips Co.

Competition was established subsequent to that between Pratt & Whitney and the Phillips Co. The first time we heard from B. H. as an interested bidder for manufacture of the nozzle segment was in January 1982.

Senator STEVENS. Which Phillips is this?

Mr. MAESE. N. V. Phillips of Belgium, sir.

Senator STEVENS. The first time you hear of B. H. was in 1982?

QUALIFICATIONS FOR BIDDING

Mr. MAESE. As an interested bidder or qualification for the nozzle segment was in January 1982. At that time B. H. was told that the qualification procedures were as prescribed in Air Force Regulation 57-2, which is a tri-Service regulation. They did not comply with that requirement until October 1982.

Senator STEVENS. They never bid before in your sector of the Department of Defense?

Mr. MAESE. Not for the F-100 segment, no, sir.

Senator STEVENS. They have to qualify for each particular segment?

Mr. MAESE. Yes, sir.

Senator STEVENS. They can't be qualified just to bid generally for F-100 parts?

Mr. MAESE. No, sir. The Air Force 57-6 regulation which is a tri-Service regulation was promulgated about 1960 and over the years in the development of that particular regulation they have come

up with 5 numeric codes and about 20 alpha codes. Of the 20 alpha codes about 11 are termed critical manufacturing codes.

They deal with critical manufacturing processes and safety of flight implications. When our engineer applies those codes in the screening process long before a buy is contemplated he must make a written determination as to which code to apply. He has to be able to defend that decision. That document is off record.

In this particular case the nozzle segment is a very critical item in the F-100 and bears a critical manufacturing code. When that code is applied we do not have full and formal competition in the form of advertised competition.

In the first place in the case of the F-100 we do not own the rights to the design data. That is, the data generally used for advertised competition. So the development of alternate sources takes place through prototype qualification. In such cases, the contractor is required to build a sample. They come in and prove to us, in the same manner that the prime contractor qualifies a source that they can manufacture the item. This was all explained to B. H. aircraft in January 1982. For whatever reasons, B. H. did not choose to submit five samples that we required until October 1982.

LENGTH OF TIME TO QUALIFY AS BIDDER

Senator STEVENS. Why did it take so long to qualify them for bidding as a competitor?

Mr. MAESE. Sir, it did not take long. In fact, we worked night and day. Usually the qualification term runs about 4 to 6 months to qualify a source for an engine run. We qualified B. H. in less than 2½ months as a qualified source. On January 7 after we got the sample we qualified them.

Senator STEVENS. The staff indicates the record shows it took 10½ months at least on the bidding part to declare them.

Mr. RICHTER. No, sir. Let me go very briefly through the chronology.

Beginning with the opening discussions of January 1982 when B. H. approached us and said they wanted to be qualified and they wanted to bid on this procurement they indicated to us that they were in correspondence and discussions with the Pratt & Whitney Aircraft Division of United Technologies and Pratt & Whitney already talked to them about building this items for them.

Subsequent discussions revealed that Pratt intended to build that item in-house and that Pratt themselves would bid on the item against Phillips. They would build it in-house, so therefore they would have no need for B. H.'s manufacturing capability.

Senator STEVENS. They determined whether there was any other competitor allowed? Phillips was already in there. Could they close the door to everybody? Does the Department determine who can bid on this item?

Mr. RICHTER. Yes, sir. we have authority to ask Pratt & Whitney's assistance in qualifying other vendors and we did that in B. H.'s case.

Mr. MASES. Let me add this. We have a clear directive to do tha under Air Force Regulation 57-2 which is a tri-Service regulation. That is to insure the quality, give the prime contractor 45 days

within which to give us his comments with regard to qualification of source and to assist in the development of the source.

QUALIFICATION TIME FOR PHILLIPS

Senator STEVENS. I understand that. I will never forget my old friend Jack Sweigart who came back on Apollo 15 and commenting when he came back "Just think, every piece of this bucket was made by the low bidder." I understand that.

Anyone who has been involved with these things for a long time understands the protection you have to have. We are not criticizing it. What we are trying to get at is how long did it take Phillips to get qualified?

Mr. RICHTER. Phillips became qualified as a source in early 1981. They were qualified by Pratt & Whitney as an alternate source. Upon our notification of that we added them to the bidders' list and we had competition from two separate sources.

Senator STEVENS. They can add a source, but you can't without a delay of 1 year?

Mr. RICHTER. No, sir. Pratt & Whitney can add to their vendor base at any time they so choose for the manufacturing capability of new components. We can ask Pratt & Whitney to provide engineering assistance. It is in the area of drawing on their knowledge on our own behalf to qualify the source.

Depending on the part, there is a qualification procedure that can take from 6 months to 18 months. For some critical engine components we require several proofs of performance of the item and we run an endurance test of an engine. That endurance test can take 6 to 8 months in a test cell with repeated runs.

On this item we judged we needed a minimal engine run and we received those procedures with B. H. Aircraft in March 1982. When it became apparent they could not provide a letter to us from Pratt & Whitney saying B. H. was a qualifying source or subvendor to Pratt & Whitney in the March timeframe we said to them "Here is what it takes to be qualified, we need five samples of these end items."

We told them what we are going to do with those samples. "We are going to cut some of them, inspect them, and put some in engines to see if they fit and work."

Senator STEVENS. I am sorry, but I am going to have to limit this. My colleague may have some questions. I have one other thing I must get to before I have to go.

PROCUREMENT REQUEST REDUCTION

Why was this procurement request reduced from 16,000 units to 6,000 units after B. H. qualified?

Mr. RICHTER. Sir, the reduction had to be coincidental with right after they were qualified. We make a quarterly computation of the assets we require.

Senator STEVENS. Did Pratt & Whitney start going in-house on some of these items?

Mr. RICHTER. No, sir. My division makes that computation and we certify what the requirement is. The largest single reason for reduction in what our buy requirement is is that over the last year

and a half we have accumulated some 10,000 of these assets that we could not repair because we did not have repair capability.

We have now been able over the last 18 months to develop a repair capability and it is our number one management priority to repair instead of buy. Therefore we are repairing these assets.

Whatever we then have left over as a requirement we are going to buy.

Senator STEVENS. Let me interrupt here, if I may, and just skip to another part of the record. You can complete this item and go to this other part of the record.

JOINT PREPARED STATEMENT

We also want to cover today the reconnaissance camera procurement issue. I told Senators Dixon and Percy that we would cover it. I want printed in the record at this point a statement by Senators Percy and Dixon. I believe they have a joint statement to be printed in the record at this point. Then there is a series of questions that I will ask Senator Rudman to pursue.

Senator RUDMAN. If you wish.

Senator STEVENS. I would appreciate it if you would. We do want to make a record on that issue also. I am informed that the two Senators will not be able to be here at this time, but we do have some questions for the Department, some of which you may submit and some of which they may submit. I want to make sure that goes in the record.

[The prepared statement of Senators Percy and Dixon follows:]

JOINT PREPARED STATEMENT

HON. CHARLES H. PERCY, U.S. SENATOR FROM ILLINOIS
HON. ALAN J. DIXON, U.S. SENATOR FROM ILLINOIS

Senator Stevens, we appreciate this opportunity to discuss with you the problems associated with the Navy's sole-source contract of a high speed, low-altitude, aerial reconnaissance camera for the RF-4B Marine Corps aircraft.

We, along with Congressman Philip Crane, have for some time attempted to obtain factual information from the Navy in response to specific questions we posed concerning the Navy's conduct in this procurement action. The replies from the Secretary of the Navy have not, to date, provided the information requested.

One of the questions the Navy has not answered is why it will not release the full report of the Navy/Air Force Evaluation Group regarding the camera proposed to be built by CAI, an Illinois company which has not been permitted to bid on this contract.

The Secretary in his letter to us of December 13 alleged past procurement difficulties with the Illinois company.

However, in our view, any such problems stem largely from the Navy's reliance on sole-source contracts, a mistake the Navy has now compounded with a questionable sole-source award in the current procurement.

The Navy's purchase request justifying procurement on a sole-source basis is replete with errors.

The justification for sole-source negotiations deals with the KA-107C camera, yet the authorization to award a sole-source contract is for the KS-153A camera. Two different cameras.

Further, the Navy has asserted there is no alternative supplier for the camera required, other than the awardee - Zeiss Avionics, Inc.

In fact, CAI is developing and has offered to sell to the Navy a camera, designated the CA-810, meeting the Navy's 13 announced criteria. The Commerce Business Daily notice of September 1, 1981, called for an "off-the-shelf" camera meeting 13 criteria. Neither the KA-107C camera nor the KS-153A camera is an off-the-shelf camera.

Both required further testing and modification and neither camera fully meets the stated criteria.

The Navy alleges that the cost of Research Development Test and Evaluation (RDT & E) plus procurement of a camera from an alternate supplier would be too great compared to the value of the procurement.

CAI has indicated to the Navy in its formal presentation that it would absorb all the RDT & E costs for the CA-810 camera, and has offered to sell the camera to the Navy at a price competitive with that charged by Zeiss Avionics.

It seems to us that the way to remedy the Navy's difficulties is not through a sole-source contract, but by holding an open and fair competition. The Navy's "urgent" need for this camera has us wondering why it is buying an off-the-shelf camera and not requiring delivery of the first camera for two years.

Senator Stevens, we think the many unanswered questions raised over the last few months cry out for a complete General Accounting Office investigation.

Our staffs met with the representatives from GAO a little over three weeks ago. The questions we have asked the GAO were presented in the Congressional Record on November 30, 1982 (pages 13550 through 13552.) We have also asked the GAO to include in their review the Navy's assessment of a 120-day delay in funding the KS-153A (KA 107 C) contract which was entered into the Congressional Record on December 18, 1982 (p. 15384.) The Navy's assessment opens more questions regarding this sole-source contract.

Senator Stevens, we will provide you with a copy of the GAO report when it has been completed.

We are not demanding that sole-source contracts be awarded to companies in our State. We just want our companies - and every State's companies - to have a chance to bid on procurements in a fair and aboveboard manner. This cannot fail to produce for the military the best product at the lowest cost to the taxpayers.

Charles H. Percy
U.S. Senator

Alan J. Dixon
U.S. Senator

AERIAL RECONNAISSANCE CAMERAS

Mr. DIXON. Mr. President, last April I spoke on the floor regarding a sole-source procurement by the Navy for low-altitude aerial reconnaissance cameras.

Mr. President, I was prepared last May to offer an amendment which would have halted the purchase of these cameras until an investigation by the General Accounting Office into the entire purchasing decision of the Navy had been completed.

After a telephone conversation with Mr. James F. Goodrich, the Acting Secretary of the Navy at that time, I withdrew my amendment.

Mr. President, my colleagues, Senator PERCY and Congressman PHILIP CRANE, and I met with Secretary Lehman in October and presented to him our Illinois delegation's opinion that the Navy had been in error by sole sourcing this procurement. We presented to the Secretary a proposal by an Illinois firm which involved a competitive "fly-off" between its camera and the foreign camera—a competition which would not delay the Navy's scheduled purchase plans. Mr. President, the Illinois company further proposed to develop its camera at no cost to the Navy and, in fact, to begin to manufacture the camera not knowing if it had won the "fly-off" competition, thereby insuring that the Navy's procurement schedule would be met. Secretary Lehman expressed interest in the idea and indicated he would seriously consider the proposal.

The Secretary sent a letter to Senator PERCY, Congressman CRANE, and me on November 15 stating that his decision was to allow the purchase of 10 cameras in fiscal year 1983 on a sole-source basis, but to allow a competition for the procurements in fiscal years 1984 and 1985.

Mr. Lehman is a fine man, but I, along with my Illinois colleagues, feel that in this decision, he has been ill-served by his staff.

Mr. President, this contract is for only $13.8 million, but it has far-reaching consequences for the Navy which apply to the replacement of the RF-4B aircraft in the next decade with the RF-A-18A.

Mr. President, the Secretary's offer is nothing more than a subterfuge to allow a continued sole-source procurement. The Secretary knows that once a company has begun production, it is placed at a significant advantage in bidding on future contracts. But Mr. President, let us just say for argument's sake that a different company does win the fiscal year 1984-85 procurements. That means the Marine Corps would be forced to establish training systems, spare parts inventories, maintenance programs, and all the rest for two different cameras in the same plane. Is that cost effective?

No, Mr. President, the Navy is just trying to placate the Illinois delegation with this decision, and is hoping we forget this contract in a few years. We will not. This contract award is symbolic to the State of Illinois. Our State's taxpayers receive a minuscule amount in defense spending based on how much they contribute to the defense budget. The members of the Illinois delegation are not demanding that sole-source contracts be awarded to companies in our State. We just want our companies—and every State's companies—to have a chance to bid on projects. This cannot fail to produce for the military the best product at the lowest cost to the taxpayers.

Mr. President, at the proper time my senior colleague, Senator PERCY, and I will be introducing an amendment to the fiscal year 1983 defense appropriations bill.

This amendment will be very simple. It will prohibit the Navy from spending any moneys on the procurement of low altitude aerial reconnaissance camera for the RF-4B aircraft until the General Accounting Office transmits to the Committees on Appropriations and Armed Services results of an examination of the Navy's sole-source purchasing decision for these cameras.

Mr. President, I ask unanimous consent to have printed in the RECORD Secretary of the Navy Lehman's recent letter and the response to that letter from Senator PERCY, Congressman CRANE, and myself.

There being no objection, the letters were ordered to be printed in the RECORD, as follows:

THE SECRETARY OF THE NAVY,
Washington, D.C., November 15, 1982.

Hon. ALAN J. DIXON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR DIXON: At your request I have thoroughly reviewed the procurement of the reconnaissance camera for the low altitude high speed mission of the U.S. Marine Corps RF-4B. I agree this procurement should be competed and U.S. camera manufacturers should have the opportunity to participate. I have directed that future

requirements be purchased in this manner which should give CAI the time to develop its CA-810 to meet the requirements for the RF-4B.

Currently we are faced with a time-sensitive requirement to purchase ten of these cameras. It is apparent that only the Zeiss KA-107C camera now meets the RF-4B requirement. No U.S. manufacturer, including CAI, is able to compete without imposing unacceptable schedule and cost risks upon the government. Notwithstanding that CAI did not respond in a timely manner to the pre-qualification solicitation for this purchase, the CA-810 is still in a preliminary design stage and would need modification before it fully satisfies USMC RP-4B requirements. Because of this the Navy has decided to proceed with initial procurement of the Zeiss KA-107C camera.

Should CAI continue to develop their CA-810 camera meeting Navy specification, CAI would be welcome to compete for the FY 84 and FY 85 procurements. Navy will definitely conduct a competition for the remaining twenty-eight camera procurement.

The negotiated Zeiss contract captures the majority of total price for U.S. businesses and provides for production expansion and technology transfer to Tricor Systems, Inc., located in Dundee, Illinois. I appreciate your interest in the Navy/Marine Corps aerial reconnaissance mission. CAI should be aware that if the Navy determines that the RF/A-18A is required to perform a low altitude photoreconnaissance mission, it is our intention to conduct a full and open competition.

Sincerely,

JOHN LEHMAN.

U.S. CONGRESS,
THE ILLINOIS DELEGATION,
Washington, D.C., November 24, 1982.

Hon. JOHN LEHMAN,
Secretary of the Navy,
Washington, D.C.

DEAR MR. SECRETARY: We are writing to express our dismay over your action with respect to the Navy's acquisition of a new low level reconnaissance camera for the RF4B. Particularly distressing is the fact that you did not consult with us—as you said you would—prior to taking this action. In our opinion, the decision which the Navy has reached does not provide for fair and open competition.

Equally disappointing has been the response of Navy personnel to the specific concerns which we raised on this issue. Not only were our questions to your staff repeatedly not answered, and not only was information deliberately withheld; but, based upon our own assessment of this matter, we can only conclude that the facts and observations about this case which we raised were, in our view, improperly conveyed to others for the purposes of thwarting our efforts to get to the bottom of this matter.

As we stated at the outset, our only objective has been to secure fair and honest competition in this procurement. As you pointed out in our meeting, this buy by the Navy has far reaching consequences. We well appreciate and applaud your efforts to encourage additional competitive sources of supply for the United States Navy but in all candor, Mr. Secretary, the actions which the Navy has taken with respect to this procurement and our legitimate efforts to gather information about it, far exceed the bounds of propriety, and perhaps the letter of the law.

Accordingly, we—as well as other members of the Congress—shall proceed with the necessary steps to ventilate this entire matter; and if the evidence thereby revealed so warrants, reverse the effect of this decision.

Enclosed you will find a list of specific questions which have been directed to the Navy in various forms on previous occasions. Would you be so kind as to have specific and complete answers provided to each of us no later than the close of business on December 6?

We do have one immediate question, however. Your letter of November 15 stated that the Navy has decided to buy ten of the 38 cameras from Zeiss on a sole source basis and that the "Navy will definitely conduct a competition for the remaining twenty eight camera procurement." But even this statement does not seem to square with the facts. We have learned that the Navy has instructed the contracting authority to sign a two year procurement contract. (FY82 & FY83) which, according to the Navy's RFP, provides for eighteen cameras from Zeiss—not ten as stated in your letter to us. Mr. Secretary, what are we to believe?

In closing we wish to express our regret over the necessity for this letter andour attendant future actions; however, based on the long and disquieting experience of attempting to resolve this matter by reasonable and diligent effort, the Navy has left us with no other choice. Only more regretful is the failure of Navy personnel to live up to your personal commitment.

Please feel free to call on us. Our goal as I'm sure is yours, is to serve the people of Illinois and the nation.

Respectfully,

CHARLES H. PERCY,
ALAN J. DIXON,
PHILIP M. CRANE.

UNANSWERED QUESTIONS ON U.S. NAVY PROCUREMENT OF LOW ALTITUDE AERIAL RECONNAISSANCE CAMERAS FOR RF-4B AIRCRAFT

1. Why, during the period 1977-1981, did the Navy work only with Zeiss Avionics to develop a new low altitude aerial reconnaissance camera?

2. Did Naval personnel deliberately or otherwise keep secret from U.S. Sources the Navy's requirement for a new low altitude area reconnaissance camera and did the Navy specifically and purposefully keep secret from CAI Recon/Optical, Inc., its developing relationship with Zeiss Avionics for the purpose of establishing a second, competitive source of supply for aerial cameras? Why did Naval personnel on numerous occasions between 1977 and 1980 falsely state, in response to specific inquiries from representatives of CAI Recon/Optical, Inc., that there was no requirement for a camera of this type when, in fact, those same personnel were during that same period discussing precisely such a requirement with Zeiss Avionics?

3. Why did Naval personnel state to representatives of CAI Recon/Optical in the Spring of 1979 that the sole purpose of the initial acquisition of the Zeiss KA-107 camera was an unsolicited routine technical evaluation directed at no specific requirement? How does the Navy reconcile such statements with Assistant Secretary Sawyer's statement (March 26 letter to Senator

Dixon) that a specific requirement has indeed existed since 1978?

4. Was there collusion between Naval personnel and Zeiss to the exclusion of U.S. industry? Has the Navy investigated, as requested by members of the Illinois Congressional delegation, the relationship between the current head of Zeiss Avionics, who retired from the Navy in 1980 after holding positions of responsibility for major procurement decisions on aerial reconnaissance cameras, and who then continued to work closely and in confidence with former associates and personnel still in the Navy who were instrumental in Zeiss' development of the KA-107/KA-108 cameras and who have subsequently had major responsibility for shaping the current sole source procurement? Did any current Navy personnel play any role in connection with the hiring of the head of Zeiss Avionics?

5. What is the Navy's justification for (a) awarding to Zeiss in July 1980 a $320,000 sole source contract for automatic test set for the KA-107/KA-108 cameras, and (b) developing with Zeiss and approving in April 1981 an Integrated Logistic Support Plan for the KA-107C camera, when the Navy admits that the Marine Corps' formal operational request for a new camera was not made until June 1981?

6. What efforts did the Navy make, prior to September 1981, to open the camera procurement to competition by U.S. sources? What companies were contacted? By whom? When? What were they told? What evidence does the Navy have of its efforts to work with U.S. sources?

7. Why was the September 1981 Commerce Business Daily (CBD) notice of source solicitation issued only after CAI Recon/Optical directed inquiries to the Navy concerning the Navy's previously undisclosed plans for procurement of production quantities of the Zeiss Camera?

8. Why were the camera criteria listed in the CBD source solicitation tailored to the Zeiss camera,[1] effectively precluding fair competition by U.S. sources?

9. Since the Navy (a) imposed a 14-day response time in the CBD notice, (b) stipulated an "off-the-shelf" camera, and (c) said there was an "imminent need" for the camera (see Assistant Secretary Sawyer's letter to Senator Dixon dated March 26, 1982), why did the Navy take more than seven months—until April 15, 1982—to issue a Request for Proposals for the camera, and then establish in that RFP an extended delivery schedule—with first article delivery 540 days after contract award, first production camera delivery roughly two years after contract award, and final camera delivery not until FY 1986?

10. How can the Navy claim that the KA-107C camera contains no deviations from the criteria set forth in the CBD notice (as Assistant Secretary Sawyer asserted in his March 26, 1982 letter to Senator Dixon) when in a paper presented by Zeiss itself to the Society of Photo-Optical and Instrumentation Engineers in August 1982, the company states that the camera can provide a maximum of only 10.8 pictures per second, while the CBD notice required a minimum of 12.6 pictures per second? If the Navy is relaxing its requirement to allow Zeiss such a major deviation from the specifications and if the Navy is seriously considering competition, why has not the Navy notified potential competitors of changes to the requirements contained in the CBD notice?

11. How can the Navy claim that the KA-107C camera is an "off-the-shelf" camera, meaning "proven equipment" in Assistant Secretary Sawyer's words, when the Navy and Zeiss have encountered massive hardware failures, have engaged in substantial systems redesign, and are still encountering fundamental technical difficulties with the camera's performance more than a year after Zeiss responded to the CBD notice?

12. Why did the Navy proceed (without informing Congressional representatives as the Navy had promised to do) with further flight tests of the Zeiss camera in September 1982 when Assistant Secretary Pyatt explicitly stated to the Congressional delegation that there would be no further activity of any kind on this procurement until the delegation's questions were resolved?

13. In the Determination and Findings required by the Armed Services Procurement act of 1947 and the implementing Defense Acquisition Regulations, what basis is cited as justifying a sole source procurement to Zeiss? When was the D&F signed? By whom?

14. Why is the Navy continuing to insist that only the KA-107C camera meets the RF-4B requirement, knowing of the problems with the Zeiss camera, when CAI can produce a competitive camera satisfying the Navy's publicly stated criteria and meeting the Navy's announced production delivery schedule?

Why has the Navy repeatedly refused to respond to Congressional requests for the Navy-Air Force Evaluation Group's evaluation reports on the CA-810 camera? What schedule risk is Secretary Lehman referring to in his November 15, 1982 letters to Senators Percy and Dixon and Congressman Crane? What cost risk is Secretary Lehman talking about, since the production contract is to be awarded on a firm fixed price basis? Why does Secretary Lehman assert that the CA-810 camera would require modification to fully satisfy the RF-4B requirements, when the camera already meets all of the specifications set forth in the CBD and the RFP? Has the Navy altered those requirements without notifying U.S. sources?

15. How can the Navy seriously consider giving a sole source award to Zeiss for the first 10 cameras and then open the FY 1984 and FY 1985 procurements to competition, as Secretary Lehman says it will do, given that different cameras procured for the RF-4B would obviously force the Marine Corps to establish separate training systems, spare parts inventories, maintenance programs, etc? Wouldn't this initial commitment to Zeiss work to the disadvantage of companies other than Zeiss in any subsequent competition?

16. Assuming the Navy were to allow open competition after procuring the first 10 cameras, how does the Navy intend to conduct the out-year procurements? Will a separate procurement be conducted for each

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[1] September 1, 1981 CBD items showing that camera requirements were tailored to Zeiss' KA 107 camera included the following:

(c) V/H limit: 10 RAD/SEC.

(h) Lateral field of view: 140 degrees minimum.

(h) must accept any emulsion or base film including IR without laboratory refocusing.

(m) image distortion sufficiently low to permit accurate mensuration without complex rectification. Item (m) specifically excluded panoramic cameras which is the type of camera design used by all U.S. companies to meet the low altitude requirement prior to the publication of this notice.

fiscal year? Is a single multi-year procurement contemplated? In addition, what happens to the 8 cameras originally programmed for procurement in FY 1983; as Secretary Lehman's November 15, 1982 letters imply?

17. with respect to the Navy's assertion that 'the sole service contract with Zeiss Avionics captures the majority of total price for U.S. business and provides for production expansion and technology transfer to Tricor Systems, Inc., located in Dundee, Illinois, at what time was this decision made by Zeiss Avionics and how much technology and what percentage of production will be transferred to Tricor Systems, Inc., and at what time will such transfer occur? Has the Navy investigated and satisfied itself that such offers of technology and production transfer are credible in light of Tricor's total lack of technical expertise or prior experience in the production of any kind of aerial reconnissance camera? Was this offer, which has no current prospect of being realized, a subterfuge by Zeiss and Navy personnel designed to mollify the Illinois Congressional delegation when questions were raised about production of this camera in Germany?

18. Has the Navy at any time disclosed sensitive or classified Government information to Zeiss Avionics, a company owned and controlled by the Carl Zeiss Foundation of Germany, a company which at the time of these negotiations did not have appropriate Department of Defense security clearances? Does Zeiss Avionics now have appropriate security clearances, and if so, when were they issued? Would the Navy be acting illegally in disclosing sensitive or classified Government information to Tricor Systems, Inc., if that company is at least partially owned or controlled by Zeiss Avionics?

The PRESIDING OFFICER. The Senator from Virginia is recognized for 5 minutes.

Mr. WARNER. I thank the President.

Mr. President, I find myself in somewhat of an unusual position.

Fifty-seven percent of this contract will be performed in the United States and of that percentage the majority in California by the winning contractor, Zeiss. So I suppose that I am speaking for my California colleagues more so than for myself.

But really I rise in defense of the Navy procurement system, having had some modest experience in that area for over 5 years. I have personally gone back and studied every aspect of this contract.

Mr. President, I ask unanimous consent to have printed in the RECORD a letter from the Secretary of the Navy.

There being no objection, the letter was ordered to be printed in the Record, as follows:

DEPARTMENT OF THE NAVY,
OFFICE OF THE SECRETARY,
Washington, D.C., December 13, 1982.

Hon. ALAN J. DIXON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR DIXON: I am writing in response to your November 24, 1982, letter regarding the Navy's decision to procure low altitude reconnaissance cameras from Zeiss Avionics. I take exception to the content of your letter as the Navy Department has worked hard for 4 years in a competitive environment to procure a camera that satisfies the Marine Corps low altitude camera requirement at lowest possible cost to the taxpayer.

The facts show that CAI Recon/Optical, Inc., was involved in the competitive process from the very beginning. In 1978, the Navy began to work with industry—including CAI—to improve the performance of low altitude cameras. CAI was fully aware of Navy's interest and met with Navy on numerous occasions during 1978 and 1979 to discuss how their KS-87B might be modified for low altitude use. The Navy even put funds in the budget to cover expected modification costs. However, CAI chose not to pursue the photo system development. Zeiss Avionics on the other hand invested their own funds to modify an existing off-the-shelf KA-107 camera to meet the USMC need. This development effort proved successful and later testing verified that the camera meets requirements. Even after we determined that the modified Zeiss camera was satisfactory, in September 1981 the Navy announced by Commerce Business Daily (CBD) the intent to produce a low altitude camera CAI did not respond to the CBD announcement or ask for additional time to respond. While CAI subsequently proposed a new development camera, the CAI-810, that camera has not been built or tested and could not meet our current, urgent need. In summary, we have accomplished the development with full knowledge by CAI of Navy's intent. They chose not to compete with a proven camera that meets the needs of the Marine Corps now.

We pursued the competitive process with CAI even though experience shows CAI's past contract performance has been poor. On their last aerial camera contract in 1977 for the KS-116B, CAI delivered the first four units in 780 days when schedule called for 240 days. Further, quality assurance, reliability and cost growth problems have continued to plague CAI cameras. As recently as early 1981, the KS-87B camera was one of the top 3 maintenance problems on the F-4 aircraft. Costs have risen on the KS-87B and KS-116B cameras by 600 percent and 91 percent respectively, far in excess of actual inflation rates over the years the Navy has been buying CAI cameras. I expect these facts have not come to your attention. They certainly make a strong case for vigorous camera competition.

As I explained in my November 15, 1982, letter, the Navy was faced with a time-sensitive requirement for ten cameras which only the Zeiss KA-107C camera could satisfy. For this reason I decided to proceed with initial procurement of the Zeiss KA-107C camera. The contract that was awarded is a multi-year contract which provides for a total of thirty-eight cameras (10 in fiscal year 1982, 8 in fiscal year 1983, 14 in fiscal year 1984 and 6 in fiscal year 1985). Assuming CAI or another contractor develops a camera that satisfies the USMC RF-4B requirements, the Navy will welcome competition to satisfy these future requirements.

Throughout the review of this procurement my staff and I have endeavored to provide you with full information concerning the Navy's requirement and the basis for its procurement decisions. I am satisfied that the Navy has made a sound business decision fully in accordance with applicable

law and regulation.

Best regards

JOHN LEHMAN,
Secretary of the Navy.

Mr. WARNER. Mr. President, that letter clearly outlines the procedure followed and the fact that it was a competitive procedure and that the contractor today being spoken for by the distinguished colleague from Illinois had an even and fair chance to compete in this contract, although they lost. Nevertheless, the procedures were followed.

Mr. President, I also ask unanimous consent to have printed in the RECORD a document from the U.S. Navy which states in effect that if the relief sought by the delegation from Illinois is granted, in effect it will break the contract which has now been awarded to Zeiss.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

NAVY ASSESSMENT OF IMPACT OF 120-DAY DELAY IN FUNDING THE KS-153A (KA-107C) CONTRACT

1. Delaying payment to Zeiss Avionics Systems for the 120 day investigation period would result in a termination of the contract at a cost, estimated by the Contracting Officer, to be in excess of $2.5M.

a. Zeiss Avionics Systems has a legitimate contract with the government. In addition to liabilities to Zeiss for work already accomplished and for obligations to subcontractors, the Government would owe Zeiss for cancellation charges under the contract. Further, if the GAO decision after 120 days is favorable to the Navy position, new contract negotiations would probably not commence until existing Government liabilities to Zeiss were resolved. Adding the administrative delays built into negotiating a new contract, it is estimated that a new contract could not be executed for at least a year.

b. Zeiss Avionics Systems (ZAS) is a small business currently indebted for approximately one million dollars. They are at the limits of their credit and are submitting to the Government a $217K progress payment request in December. Unless these funds are received, January salaries cannot be paid and ZAS would be required to close down and furlough/layoff all employees.

c. TRICOR is also a small business in Illinois whose major source of funds is from ZAS as a subcontractor for the KS-153A procurement. They would also be required to shut down and furlough/layoff all employees.

d. The delay—which is estimated to be 120 days—could in fact be much longer because shut down/start up time (and associated costs) would be required. Some materials were ordered in anticipation of the KS-153A contract. These would probably be diverted to other projects or the orders cancelled, resulting in significant delays beyond the 120 days.

2. There are numerous aspects of a delay which cannot be fully evaluated, such as: full limit of legal liability to ZAS and its subcontractors; and loss of any competition in U.S. for CAI (in recent years this company's prices have greatly increased while their product has not met all design specifications). The end result of the proposed delay would be cancellation of the KA-153A camera procurement, which is exactly what CAI is improperly trying to bring about. In effect, CAI wins even though they have no current camera which the Marines can now use.

QUALIFICATION BASIS FOR REGULATIONS

Senator STEVENS. Senator D'Amato, do you have some questions concerning these witnesses?

Senator D'AMATO. Yes.

Senator STEVENS. Will you have any other witnesses this morning?

Senator D'AMATO. No.

Senator STEVENS. We may have to pursue this matter in a generic form in a later hearing in terms of the qualification basis so far as it affects some of these regulations.

I hope you gentlemen don't take these things personally. We are trying to work our way around to see if we can reduce expenditures other than cutting out systems. This is what we are going to have to do, keep pursuing it and see if there is any way it can be done.

Mr. MAESE. Sir, we are glad to have this opportunity.

Senator STEVENS. I appreciate that.

WRITTEN INSTRUCTIONS TO B. H. ON QUALIFICATION PROCEDURES

Senator RUDMAN [presiding]. Senator D'Amato, do you have any questions?

Senator D'AMATO. When did you provide written instructions to B. H. on the qualification procedures?

Mr. RICHTER. June or July 1982.

Senator D'AMATO. Why did it take so long to give them those instructions?

Mr. RICHTER. It became apparent to us, sir, after conversations over a 6-month period that we needed to document what those procedures were even though it was the same identical thing we had extensive discussions on in the March 1982 timeframe.

In the March meetings we explained each of the qualification steps. Those steps are identical to the steps Pratt & Whitney used to qualify Phillips as the first alernate source. We explained the necessity for five samples to the B. H. people.

Senator D'AMATO. Why did you insist on five samples when the procedure was contrary to the advice that the Air Force had received from Pratt & Whitney? When you consulted Pratt & Whitney they did not advise you to seek five samples?

Mr. RICHTER. We generally use, depending on the qualification procedures for an engine component, a quantity of samples, in some cases depending on the critical nature of the component in the engine.

Senator D'AMATO. Even though the qualified supplier over the years had indicated that that was not necessary? In this case why would you go to them in the first place if you are going to disregard their advice?

Mr. RICHTER. The procedures required for qualification would necessitate that we have to have five samples to go through all those procedures. You cut up some of these samples. If a man provides only one sample and you cut it up, you obviously have no sample to put in an engine.

The reason for five samples is that we would cut one up, we would dimensionally check one, and put three in the engines to see if they perform adequately.

Senator D'AMATO. How long would it take to perform that kind of test?

Mr. RICHTER. Approximately 6 months to perform that test which is what we told B. H. in March 1982.

Senator D'AMATO. Did there come a time when you indicated that B. H. had fabricated a part that didn't fit?

Mr. RICHTER. Yes, sir. They brought one part to us, one of these nozzle segments, in the spring, I think it was early May 1982, and asked for permission to take it down on the overhaul line and put it on the engine.

We gave them that permission. They did. The pin that is required to drive through the bolt holes that holds this on was a tight fit, which is not acceptable when you put these together because when the engine heats up you can have dimensional changes and that item could bind.

B. H. acknowledged it was a tight fit and said they would go back and make corrections.

Senator D'AMATO. When did they acknowledge that and how did they acknowledge that the fit was incorrect?

Mr. RICHTER. They were on the depot floor and were working to put that item in and accepted the fact it was a tight fit.

Senator D'AMATO. Did they acknowledge that in writing?

Mr. RICHTER. I am not aware that they did, sir.

Senator D'AMATO. Did they acknowledge that to you personally?

Mr. RICHTER. No, sir.

Senator D'AMATO. How do you know that they acknowledged that when in fact they have denied that they have ever acknowledged that and in fact there was a correct fit?

Mr. RICHTER. Sir, my people were with them when they did that and they observed putting the part in the engine.

Senator D'AMATO. You did not observe this yourself?

Mr. RICHTER. No, sir.

Senator D'AMATO. But you wrote a letter on June 21, 1982. You said it is untrue B. H. submitted a sample to Air Force officials during May and were allowed access to check the fit. You did not know what B. H. did with the part after the installation attempt.

You said the Air Force observers of the action stated that the part would not fit. Who told you that?

Mr. RICHTER. Our engineers that participated in that.

Senator D'AMATO. Will you give us the names?

Mr. RICHTER. I can submit it for the record.

[The information follows:]

NAMES OF ENGINEERS

Mr. Frank Rampersad, an Engineer assigned to the Propulsion Division.

143-PERCENT COST INCREASE

Senator D'AMATO. Let me asks you something. Didn't it strike you funny that during a 13-month period of time the price went up 143 percent?

How long have you been doing this? How long have you been in this area, your present position? What is your title?

Mr. RICHTER. Deputy division chief of the propulsion division.

Senator D'AMATO. You have been doing this procuring in this area for how many years?

Mr. RICHTER. Four years in this current position.

Senator D'AMATO. And before that?

Mr. RICHTER. I was director of propulsion on the Headquarters Air Force Logistics Command staff.

Senator D'AMATO. For how long?

Mr. RICHTER. Four years.

Senator D'AMATO. That is 8 years. And before that?

Mr. RICHTER. I was staff engineer for 7 years working on engine programs and before that I was——

Senator D'AMATO. Were you involved in procurement at all?

Mr. RICHTER. Not direct, but I was involved in engineering qualification procedures.

Senator D'AMATO. Do you have understanding and knowledge of the procurement cost and price increases?

Mr. RICHTER. Yes, sir.

Senator D'AMATO. Do you think at all it is unusual that the price would go up in a 13-month period from $1,017 on this item to $2,469? Didn't that pique your curiosity?

Mr. RICHTER. The component material used to fabricate some of these engine parts is rather unique material called super alloys. It has been our experience in the last 4 years that the material itself has gone up well over 200 percent in cost. Because of some of the labor and technologies required to fabricate these items some items have gone up over 1,000 percent in cost and they have been audited.

We are not happy that the price went up, but it is a unique situation.

BID SUBMITTED BY B.H.

Senator D'AMATO. Did there come a time when B.H. submitted a bid?

Mr. RICHTER. Yes, sir. They submitted an unsolicited bid on our request for a proposal that was issued in December 1981.

Senator D'AMATO. Let me ask you this: Didn't you notice something rather interesting when they submitted their unsolicited bid? What happened? Wasn't there a previous bid?

Mr. RICHTER. There were previous procurements of this bid.

Senator D'AMATO. At $2,469?

Mr. RICHTER. Yes, sir, roughly.

Senator D'AMATO. what happened with B. H. put in its bid?

Mr. RICHTER. All of those bids from the two qualified sources and B. H.'s were less than the previous quantity.

Senator D'AMATO. How much less?

Mr. RICHTER. About 30 percent.

Senator D'AMATO. Thirty percent?
Mr. RICHTER. Or 50 percent.
Senator D'AMATO. How much?
Mr. RICHTER. Thirty to fifty percent.

BID VARIATIONS

Senator D'AMATO. You are talking about $2,469 and if you think I am talking in a strained and agitated voice, you are right. You know how much that bid came in for. It came in for $1,395 or $1,400 with Pratt & Whitney high, $1,318 by Phillips; is that correct? More than $1,000 per item under the previous contract price, isn't that true?

Mr. MAESE. Yes, sir, that is true, but that was a sealed bid process. There was no way for Mr. Richter to know that the bid price had dropped or why they had dropped at that point in time.

Senator D'AMATO. You first had a bid. You are suggesting to me that we can explain away this incredible increase of 143 percent in 13 months by saying the the price of these materials has gone up. Yet when someone puts in an unsolicited bid, it comes down from $2,400 to $1,400 because there is competition. Isn't that a fact?

Mr. MAESE. Probably so, yes, sir.

Senator D'AMATO. Let us not try to tell the public or tell this committee that the reason we have this incredible increase is because the cost of the product has gone up. You had no competition. You had two people in there. What has been the history prior to this? Didn't Phillips win the bid prior to this?

Mr. RICHTER. Yes, sir.

Senator D'AMATO. What was the difference between Phillips and Pratt?

Mr. RICHTER. I don't know that number, sir.

Senator D'AMATO. $50?

Mr. RICHTER. I don't know. Several hundred, I think, but I don't know the exact quantity. That also was a sealed bid.

Senator D'AMATO. I am wondering if you ever analyzed it to see how these bids come out. For example, May 1978, you procured 665 units at $994, from Pratt & Whitney, May 1980, $1,017, Pratt & Whitney, June 1980, $1,017, Pratt & Whitney, and, in January 1981, $1,500, N. V. Phillips. In July 1981 we are up to $2,469. Then when the unsolicited bid comes in we go back down to $1,300.

That never struck your curiosity?

Mr. MAESE. Yes, sir, it did strike our curiosity.

Senator D'AMATO. What did you decide? Did you decide the price of material came down or did some competition force the price down?

Mr. MAESE. I think that is probably true.

Senator D'AMATO. What did we do to attempt to facilitate honest, conscientious qualified competition?

You have a Mr. Best who works for you?

Mr. RICHTER. He is one of my engineers.

Senator D'AMATO. Mr. Best implies that it would be a violation of Regulation 30-30 simply to attempt to find out what has to be done to qualify an approved source.

Let me ask you this: If that is the case, if you have your own procurement officers who are involved in this process who imply to those who attempt to qualify as bidders that they will be violating the law, how does someone become a qualified bidder within the law?

Mr. MAESE. Senator, in 1982 we spent $1.4 billion in the San Antonio district replacing spare parts. Propulsion systems' spare parts constituted 53 percent of that total expenditure. Of that 53 percent, of that $1.4 billion, 20 percent, $272 million, was awarded on fully advertised competition. Seventy-eight percent——

Senator D'AMATO. Excuse me. If it is competition, the kind of competition we have seen here, I want to tell you something, that is not fully advertised competition.

It doesn't make much sense if you preclude people from competing and then you put them through a qualification process requiring them to test five samples. First, you see price increases like this under restrictive conditions and then prices come down and then you say "I guess competition did it." In how many other procurements has this taken place?

How many hundreds of millions of dollars are the taxpayers paying because you have procurement practices and policies that prevent honest competition that we need so desperately? We are supposed to defend this budget and we have trouble when we see cases like this.

Senator RUDMAN. I wonder if the witness could finish his statement. He mentioned 20 percent and then 78 percent.

Would you finish that for the record?

Mr. MAESE. Twenty percent of that $1.4 billion expenditure was done on fully advertised competition. Seventy-eight percent was done on what we call direct purchase breakout, including the development of alternate sources to the prime. Two percent was awarded sole source.

In our AFR 57–6 regulation, the tri-Service regulation on competitive breakout, the order of precedence is from a code 5 sole source to code 3 breakout to actual manufacturing vendor and this is all in accordance with the recommendations in 1962, and we have been following the same ever since.

AIR FORCE INVESTIGATION

Senator D'AMATO. Is the Air Force conducting an internal investigation at the San Antonio Air Logistics Center?

Mr. MAESE. Not to my knowledge, sir. About what?

Senator D'AMATO. In terms of the practices used in the procurement area?

Mr. MAESE. I don't know of any, sir.

Senator D'AMATO. Is it common to experience this kind of increase within a period of 13 months that we just talked about?

Mr. RICHTER. Because of that?

Senator D'AMATO. Yes.

Mr. RICHTER. I don't know of any investigation. I do know that there is discussion among the procurement officials, between San Antonio and the Air Force, with regard to an investigation, but I don't have any personal knowledge of it.

Senator D'AMATO. Mr. Director, are you presently in the same capacity?

Mr. RICHTER. Yes, Sir.

Senator D'AMATO. Are you attending school? Are you on leave from your post?

Mr. RICHTER. No, sir, I am back on duty.

Senator D'AMATO. Mr. Chairman, let me simply suggest that I believe that this is the tip of the iceberg and the situation is totally unacceptable. I don't believe that in good conscience we can allocate the kind of money requested in this budget for our defense if we are going to see the administration of procurement, whether it be in terms of this kind of vital component or others, handled in this manner. I find it unbelievable that we could allow a situation to develop in such a manner that you can sit back and say "Yes, I guess it was because of an unsolicited bid that came in that the price came down from $2,400 to $1,400 per part."

We are talking about the possible procurement of something like 14,000 parts, a $44 million procurement. I don't think that is acceptable. I don't think the committee does.

Again I would ask that this committee at a future time continue to look into this matter. There are other investigations that are underway that I think will lead eventually to an inescapable conclusion that at the very least procurement procedures must be employed so that we can prevent these kinds of things from taking place that prevent honest competition.

Mr. RUDMAN. I would like to ask this one final question.

When will the next bid on these particular parts be going out?

Mr. MAESE. This particular bid, which has been on the street now for years, has been held up and no award has been made.

Senator RUDMAN. When the next bid for this part goes out, of course, this particular vendor is fully qualified?

Mr. MAESE. Yes, sir. It is my understanding that B. H. is seeking to have a resolicitation of that particular buy.

Senator RUDMAN. Aside from that, I assume that they are now a fully qualified bidder and will bid on the next round of parts of this nature for your program?

Mr. MAESE. Their name appears as an alternate source like hundreds of others we have qualified, yes, sir.

Mr. RICHTER. They will be solicited.

Senator RUDMAN. Also it is quite possible when the next bids come in you might find a bid from one of the primary suppliers to be down in the area of the bid of B. H. That happens, doesn't it? That is competition?

Mr. MAESE. They can buy in at $500 lower, yes, sir, that happens every day.

Senator RUDMAN. So the delay in this case, justified or not, could very well reward the company that in fact could be the primary cause of a lower price due to competition?

Mr. MAESE. That is right.

Senator RUDMAN. Thank you very much.

ADDITIONAL COMMITTEE QUESTIONS

The committee has additional questions which we will submit for your response.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

SUBMITTED QUESTIONS

COST INCREASE

QUESTION: Between May 1980 and July 1981 the average price of a single F100 engine spare part increased from about $1,000 to $2,500. During this period, a new contractor was selected even though his price was about $500 per unit more expensive. Were these variances noticed by the government contracting officer? Why was this kind of cost increase permitted?

ANSWER: In May 1980, the Air Force procured 210 divergent nozzle segments from Pratt-Whitney Aircraft on a price redeterminable contract. The award price was $1,017 each. The final negotiated price was $1,503 each. The Air Force procured an additional 132 segments from N. V. Phillips in January 1981 on a firm-fixed price contract for $1,537 each. The variance in cost between the two contracts, after final price negotiation with Pratt-Whitney, was only $34. In July 1981, the Air Force procured 6,585 divergent nozzle segments from N. V. Phillips on a firm-fixed price contract for $2,469 each. The $932 increase in unit cost from the previous contract was attributed to significant increases in honeycomb material cost, increased production costs, setting up additional organic production lines, training new production personnel, and new tooling cost. This variance was noticed by the government contracting officer. However, the price was determined fair and reasonable based on price competition.

F100 ENGINE SPARES

QUESTION: What was the budgeted price for these spare parts?

ANSWER: The FY 83 budgeted unit cost for the F100 engine divergent nozzle segment was $1,414.

BUDGETED/ACTUAL COST OF F100 ENGINE SPARES

QUESTION: The July 1981 contract aware for 6,500 units at roughly $2,500 each occurred barely six months after a price quotation nearly $1,000 cheaper. For an overall contract price of $16 million, how did the Air Force cover the difference between budgeted and actual cost?

ANSWER: The Air Force covered the difference between the budgeted and actual cost by reducing the quantities or deferring buys for less mission essential items.

QUALIFICATION OF COMPETITIVE SOURCE

QUESTION: For nearly two years the contracts for these F100 engine spare parts were awarded to one of two contractors, one foreign. When a third competitor submitted an unsolicited proposal for about $1,000 less than the going unit price, it, B.H. Aircraft, was disqualified because it did not have Air Force approval as a manufacturing source. The contractor, B.H. Aircraft, was finally approved this month, almost one year

after its original bid. Why did it take so long to qualify this attractive competitive source?

ANSWER: It took two and one-half months to qualify B.H. Aircraft after the Air Force received the required number of samples. It normally takes four to six months to qualify a new source for engine components.

AF INTERNAL INVESTIGATION

QUESTION: The Committee has been informed that the Defense Inspector General and a team of criminal investigators are examining this case. Is the Air Force conducting an internal investigation at the San Antonio Air Logistics Center? If so, what are the preliminary results?

ANSWER: The Air Force Office of Special Investigations is not conducting any investigation at the San Antonio Air Logistics Center; however, they are monitoring the investigation of this case being jointly conducted by the Federal Bureau of Investigation and the Department of Defense Office of the Assistant Inspector General for Investigations.

PROCESS FOR RECOMPUTING SPARE/REPAIR PARTS

QUESTION: Can you describe the process for recomputing spare and repair parts requirements?

ANSWER: The Air Force utilizes an inventory model that computes buy and repair requirements for approximately 100,000 master items four times a year. Each quarterly computation reviews the past two years of activity (e.g., flying hours), demands on the supply system for that item and determines numerous factors or rates. The model determines the rate at which each items breaks, what percentage are fixed at the base, what percentage are fixed at the depot and what percentage could not be fixed (condemned). The model then calculates future demands by multiplying these new rates times future activity. The model then computes total requirements; subtracts on-hand assets, on-order assets and projected repairs. The net amount is the buy requirement.

INCREASE/DECREASE IN PARTS REQUIREMENTS

QUESTION: Is it common to experience a three-fold increase or decrease in parts requirements within six months?

ANSWER: The decrease in the buy requirements for F100 engine divergent nozzle segments occurred within an 18 month period. It is not unusual to see dramatic changes in buy requirements over an 18 month interval.

EXPLAIN DRASTIC CHANGE

QUESTION: Shortly after the Air Force qualified B. H. Aircraft as a supplier of F100 engine spares, the procurement request was revised from a required 16,000 units to less than 6,000. What forced this drastic change?

ANSWER: The procurement request was reduced from approximately 16,000 units to approximately 7,200 units. The original procurement request was initiated 18 months ago and a repair procedure has been developed in the interim. The repair capability drastically reduced the number of broken segments that would have been condemned. It is Air Force policy to repair items whenever possible in lieu of procurement.

REEVALUATION

QUESTION: The effect of this changed requirement is that B.H. Aircraft can no longer offer a competitive price, leaving the Air Force with exactly the same two competitors it had one year ago. Did this factor enter into the reevaluation of the Air Force "requirement" for this part?

ANSWER: No. The buy requirement for F100 engine divergent nozzle segments was redetermined based on the review of 18 more months of usage data and the development of a repair procedure that previously did not exist.

ADDITIONAL F-100 PROCUREMENT

Senator D'AMATO. Mr. Chairman, if I might, I submit for the record another example of a procurement which demonstrates a rather similar problem. For lack of a better description, I will identify it as part No. 4051378.

In July and August Pratt & Whitney was the vendor. The Air Force bought quantities of six at $191 each. In March the Air Force bought two quantities of 50 and experienced two separate price escalations. Phillips came in at $285 each. Then, in October, a price of $285 and $385 was bid.

I suggest to you that to save time you allowed no competition, that escalation occurred, and the taxpayers pay. I submit that for the record.

Senator RUDMAN. Thank you very much. there are no further questions.

DEPARTMENT OF THE NAVY

STATEMENT OF EVERETT PYATT, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY (SHIPBUILDING AND LOGISTICS), DEPARTMENT OF THE NAVY

CAMERA SYSTEM FOR RECONNAISSANCE AIRCRAFT

Senator RUDMAN. The other issue that remains for the hearing this morning that was raised on the floor dealt with a new camera system for reconnaissance aircraft. I believe Mr. Pyatt is Principal Assistant Deputy Secretary of the Navy.

You were not asked to prepare a written statement, but perhaps you might briefly summarize the camera's process that was subject of some discussion on the floor late last year.

Mr. PYATT. Yes, sir, this camera has a long history. In the late 1970's, 1977 period, the Navy and Marine Corps came to the conclu-

sion that the current camera that was being used for low level photography should be improved and there might also be other cameras available that could do a better job.

Several initiatives were undertaken, including going back to the original manufacturer, CAI, for a reliability improvement and also attempting to stimulate CAI's interest on a sole-source basis to make improvements. They indicated no interest and said they had done the best they could do and we concluded we should look elsewhere.

The people in the program office were aware of the German development that had been installed in Canadian airplanes, being built in the United States. They proceeded to investigate the potential capabilities of this camera and in 1979 bought one of these for testing.

In the testing procedure from 1979 through 1980 some deficiencies were learned, including the kind of things that you normally find as a product which has to perform in a specific operational environment is tested and evaluated.

At this time there were CAI people at the test site and they were fully aware. In June 1981 the modified camera was tested and the Navy people doing the testing were very happy with the performance.

OFF-THE-SHELF CAMERA

In September 1981, as an attempt to assure that no stone had been left unturned, the Commerce Business Daily solicitation for an off-the-shelf camera for this kind of mission was published and only Zeiss Avionics responded. In fact, it was in November 1981 that CAI told the Navy it did not have an off-the-shelf camera to meet the Navy's stated specifications.

The issue as far as I can determine, was first brought to the Secretariat's attention in roughly February 1982 when Senator Dixon raised an issue regarding the procurement, primarily focusing on the noncompetitive nature we had at that time envisioned.

In the spring of 1982 I became involved in trying to sort out the issues that had arisen. Also in the spring we had a meeting in Senator Dixon's office. For the first time, to the best of my knowledge, the alternate proposal of CAI was thrown on the table. It was not a proposal, more like a brochure in my view.

I directed an independent investigation of this proposal, utilizing within our limited ability the Navy and Air Force people who had not previously been involved in Navy activities.

A review on our part indicated that the concept outlined in the brochure and the promises made certainly would yield a good camera if they were able to instrument it. That process was at least a couple years long, and in looking at some of the promises that had been made in prior times for performance, this kind of endeavor had taken much longer.

MULTIYEAR PROCUREMENT CONTRACT

The Navy evaluated this and Secretary Lehman discussed it with Senator Percy, and we proceeded with a multiyear procurement of the 38 cameras.

We stated that in looking at the pricing structure it was clear that to get the best price we should enter into a multiyear agreement. However, because of the cancellation fees that would be involved as far the project indicated, we thought it would be wise to build in a feature that would allow re-competition at the 2-year point. Then, if in fact CAI did go ahead with the design and built it, we could test it.

We could have another competition and we would have a price and people would know what we were shooting for.

I think another thing that evolved, rather unplanned, is that prior to this endeavor approximately 75 percent of our camera work was sole source. Now, with the way this particular project has evolved over time we are seeing the effects of competition. We welcome it; we have made the promise that our next major program, which will be for the F–18 will be competitive.

We totally agree with the thrust and believe in competition and in fact its value has been proven here. Had it not been for the Zeiss camera we would still be using the technology of the early seventies into the nineties.

Senator RUDMAN. Is my understanding correct that until the new development presented by Zeiss came to the attention of the Navy that the need for this kind of camera with this kind of utility in the high-speed, low-altitude function did not exist, nobody had really thought that might be a good thing to have for a reconnaissance mission?

Mr. PYATT. No, sir. The Marine Corps had been flying that mission in the F–4's for a number of years. I can't tell you how long, but I saw them in operation before this.

Senator RUDMAN. At low level?

Mr. PYATT. Yes, sir.

Senator RUDMAN. What they were using, however, did not do what this new development can do?

Mr. PYATT. No, sir. The reason we entered into the new development was because of some of the faults in the old camera.

Senator RUDMAN. You did not enter into this until the technology essentially was brought to your attention by the supplier? Is that correct?

Mr. PYATT. As I go back over my understanding of the history, in the 1977 period the Navy and Marine Corps concluded they needed either an advancement of the camera that was installed or a new camera.

Senator RUDMAN. But there appeared to be no development programs that were submitted to do that?

Mr. PYATT. They went back to the original supplier, CAI, and asked for improvement and they indicated none were available. Two years later there came the West German development.

Senator RUDMAN. I take it you don't think it is feasible to wait for a development here in this country that will produce a camera comparable to the foreign-purchased unit?

Mr. PYATT. As I understand it, more than half will be built in the United States now. Some of the modern technology has moved to the United States in this camera, which I think is beneficial.

Senator RUDMAN. It would appear that a number of commitments made in terms of purchasing equipment to test, have given

Zeiss, if you will, somewhat of a competitive advantage early on in this program.

Mr. PYATT. It is true that any time someone starts a program there is a competitive advantage. That is well proven by CAI's experience in the past 15 years. Having the equipment, it was instrumental in getting the next development.

One of the things we try to do in our performance here is to separate our next major development and be sure it is competitive.

For the 38 cameras on the aging RF-4 fleet, time is important. We thought it was desirable to proceed with that. But the way the event evolved, with CAI pursuing their development and Zeiss pursuing theirs, I am sure we are going to have a real good tight competition for the RF-18 program.

Senator RUDMAN. The bottom line of your testimony is that it seems to me it is the position of the Navy that the supplier of longstanding has been a little asleep at the switch technologically, that someone moved in with something you thought was interesting at the time and you said you would try it. Now that there is sufficient interest in the program, F-18 program, you expect it will be competed?

Mr. PYATT. Yes, sir.

Senator RUDMAN. We may have some other questions for the record. I think probably that is about all I have to ask you this morning.

Mr. PYATT. Thank you very much.

ADDITIONAL COMMITTEE QUESTIONS

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

SUBMITTED QUESTIONS

RECONNAISSANCE CAMERA PROCUREMENT

Question. If the need was even faintly recognized in the 1977-1978 period, why didn't the Department encourage U.S. firms to start development of such a camera?

Answer. The Navy made repeated attempts during the 1977-1978 period to interest U.S. firms in the need to obtain improved low altitude, high speed photography. further, in 1978, the Navy attempted to solve the problem of low altitude, high speed coverage by procuring additional 3" focal length lenses for CAI's KS-87B camera, which was the primary sensor in both the RF-4B and the RF-8G. The 3" lens did provide some improved capability in the low altitude regime, but did not satisfy the Marine Corps requirement primarily because of its limited angular field of view.

Question. Does anyone now question the need for a high speed, low altitude camera system like that developed by Zeiss?

Answer. To our knowledge no one is questioning the requirement for a low altitude, high speed camera system. the Marine Corps strongly supports the requirement. Additionally, the Navy is conducting an Engineering Test Bed effort for the RF/A-18A and the low altitude, high speed mission is included in this evaluation.

Question. Given the apparent need for this camera, is it feasible now to wait for a U.S. developed alternative or competitor?

Answer. Considering the need right now for a low altitude, high speed capability in the RF-4B and the plan to begin the phase out of that aircraft in the late 1980's or early 1990's, any further delay in procuring cameras is not feasible. However, a U.S. developed competitor for the low altitude requirement in the RF/A-18A is highly desirable.

Question. Does the Navy still plan to open the RF-4B camera procurement to competition if a suitable alternative is developed?

Answer. The Secretary of the Navy has directed that the Naval Air Systems Command compete the 1984 and 1985 procurements of low altitude cameras for the RF-4B. Domestic camera suppliers will again be requested to submit candidate alternatives.

Question. While the Zeiss camera was developed in Germany, and appears to be a technological step forward, wouldn't it be to our national interest to have a domestic producer, particularly in light of the planned replacement of the RF-4B early in the 1990's?

Answer. A domestic producer of a low altitude camera which incorporates technology similar to that contained in the Zeiss camera would obviously be preferred. This would not only expand the domestic technological capability but would enhance the competitive environment.

Zeiss (Germany) presently has agreements with TRICOR, Inc., of Dundee, Illinois, to produce printed circuit boards for the camera. Zeiss is also exploring licensing arrangements with other U.S. firms to produce camera bodies and film cassettes. Since CAI, a Barrington, Illinois company, is also developing a camera, U.S. competition for the planned RF/A-18A procurement can be expected and should benefit the Navy.

SUBCOMMITTEE RECESS

Senator RUDMAN. The subcommittee stands in recess to the call of the chairman.

[Whereupon, at 12:15 p.m., Tuesday, February 1, the subcommittee was recessed, to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

THURSDAY, MARCH 3, 1983

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:05 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Warren B. Rudman, presiding.

Present: Senators Rudman (presiding), Stevens, Garn, and Proxmire.

DEPARTMENT OF DEFENSE

RESEARCH, DEVELOPMENT, AND ACQUISITION

STATEMENT OF HON. RICHARD D. DELAUER, UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

RESEARCH, DEVELOPMENT, AND ACQUISITION OVERVIEW

BUDGET REQUEST

Senator RUDMAN. The subcommittee will be in order.

The chairman is opening the Senate this morning and will be with us I hope shortly.

This is the time scheduled to conduct an overview of the research, development, and acquisition budget of the Defense Department for the fiscal year 1984.

Modernization has been given the sharpest emphasis in the new budget with $7.4 billion, or an 8.5-percent increase in procurement, and $5.7 billion, or a 24-percent increase in R&D.

Our purpose today is to review this modernization initiative, this increase in weapons system investments, implications these proposals have on military capability, and future spending requirements.

RD&A COMPARATIVE SUMMARY TABLE

For the record we will ask that the Department prepare for insertion at this point a comparative summary of research, development, and acquisition appropriations and outlays similar to those presented in total obligational authority form in the back of the annual report on RDA.

You may consult with the staff, if you want, Dr. DeLauer, on these tables.

Dr. DELAUER. Yes, Mr. Chairman.

[The comparative summary follows:]

PROCUREMENT AND RDT&E OUTLAYS BY APPROPRIATION, FISCAL YEAR 1984 BUDGET ESTIMATE

[In millions of dollars]

Appropriation	Fiscal year—		
	1982	1983	1984
Aircraft procurement, Army	1,296.5	1,436.0	2,368.5
Aircraft procurement, Navy	5,872.2	7,552.5	9,317.3
Aircraft procurement, Air Force	9,624.4	12,446.5	15,379.4
Total aircraft procurement	16,793.1	21,435.0	27,065.7
Missile procurement, Army	1,268.5	1,866.8	2,363.7
Weapons procurement, Navy	2,444.3	2,775.7	3,233.2
Missile procurement, Air Force	3,069.2	3,927.9	5,063.6
Total missile procurement	6,782.0	8,570.4	10,660.5
Total shipbuilding/conversion	6,738.6	7,248.9	8,506.1
Weapons, tracked combat vehicles, Army	2,143.7	3,532.6	4,109.6
Ammunition, Army	1,646.8	1,934.3	2,117.1
Total weapons/tracked vehicles	3,790.5	5,466.9	6,226.7
Other procurement, Army	2,027.5	2,982.0	3,706.9
Other procurement, Navy	2,696.8	3,240.1	3,616.7
Other procurement, Air Force	3,662.4	4,978.6	6,418.9
Total other procurement	8,386.7	11,200.7	13,742.5
National Guard equipment, Army		7.5	22.5
Procurement, Marine Corps	381.6	771.7	1,237.5
Procurement, defense agencies	384.0	485.1	727.0
National Guard/Reserve equipment		11.8	38.1
Procurement of aircraft/missiles, Navy	11.0	10.0	9.0
Procurement of equipment and missiles, Army	3.4	2.5	2.5
Total procurement	43,271.0	55,210.5	68,238.1
RDT&E, Army	3,229.7	3,666.0	4,364.4
RDT&E, Navy	5,240.3	5,900.7	7,138.9
RDT&E, Air Force	7,794.2	9,870.3	12,257.0
RDT&E, defense agencies	1,420.0	1,943.2	2,518.8
Director of Test and Evaluation	44.8	49.8	53.0
Total RDT&E	17,729.0	21,430.0	26,332.1
Total research, development and acquisition	61,000.0	76,640.5	94,570.2

INTRODUCTION OF RICHARD DE LAUER

Senator RUDMAN. Our principal witness today is the Honorable Richard DeLauer, who is the Under Secretary of Defense for Research and Engineering.

Dr. DeLauer, welcome again before our committee. We have your annual report on RDA, but not the usual prepared statement we required.

Do you have any prepared statement that you want to insert in the record at this point?

Dr. DELAUER. Just a short summary, Mr. Chairman.

Senator RUDMAN. Fine. Proceed with that, and then we will incorporate in the record any other statement you wish to insert.

[The statement follows:]

EXECUTIVE SUMMARY STATEMENT OF HON. RICHARD D. DELAUER
UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

INTRODUCTION TO THE FY 1984 RD&A BUDGET AND PROGRAMS

Mr. Chairman and members of the Committee:

It is a privilege for me to present the Department's Research, Development, and Acquisition (RD&A) Budget Request for Fiscal Year 1984. For me, this is an important milestone. The five year program (FY 1984-1988) associated with this budget is the product of sustained progress in organizational, management, and acquisition reforms which are beginning to reshape the form and substance of Defense acquisition and force modernization.

The problems we face are extraordinarily complex and we have had to make difficult choices to ensure that the FY 1984 program addresses the defense priorities established by the President. The FY 1984 RD&A budget and programs balance critical improvements in our near term posture with important investments to preserve future options and capabilities. We request your support for this particular program, but beyond that we request your careful consideration of some of the principles we are seeking to codify. Together, we must work particularly hard in formalizing a stable acquisition program that has a logic based on understandable goals and objectives, and to which we can adhere with increasing consistency. Constancy is the key to a stable, affordable modernization program which is also responsive and adaptable to a risky and uncertain future.

Progress toward our overall modernization goal depends upon Congressional support of our objectives, as well as the programs and the resources needed to implement them. We intend to continue to work closely with Congress to ensure that we have your advice and support; and that our RD&A programs are fully explained and justified in the context of our overall integrated planning concept.

In this opening chapter, we would like to outline our overall approach in addressing seven topics, as follows: (a) An Overview, (b) Organization and Management, (c) Soviet Modernization, (d) A Balanced Approach to Modernization, (e) Cross-Service Mission Area Planning, (f) Acquisition Management, and (g) International Cooperation.

A. AN OVERVIEW

In our statement to you last year, we reported that we were going to provide emphasis on modernization and readiness and improving the acquisition process. This required changes in our approach to management, changes in planning, and acquisition management reform. Although it takes time to impact the course of events in a Department the size and complexity of Defense, we have made progress. As you know, we started toward our basic goals in the amended FY 1982 budget and prepared the FY 1983 budget to meet consistent objectives. Our FY 1984 Research and Development and Acquisition (RD&A) program reflects further refinement of those objectives.

The FY 1984 RD&A budget request of $124 billion is the means by which we propose to fund modernization programs that are needed now for our deployed forces. It is also the means by which we propose to invest in our long-term military strength by initiating new programs and maintaining the vitality of our Technology Base. It is the means by which we propose to follow through on the changes made in the acquisition process, from planning through production, so that we can more efficiently procure in sufficient quantities affordable weapons and support systems.

The modernization goal is to have capable, affordable forces equipped to adapt to new and evolving threat environments, new theaters of operation, and political and economic discontinuities. We have developed this program taking into account long-range resource planning in major mission areas. The com-

ponents of the total program were developed by mission area in an integrated comprehensive way, including full consideration of C^3I capabilities essential to every mission.

The mission area planning approach is highly dependent on a developing new role for the organization of the Joint Chiefs of Staff. As opposed to being focused on Service requirements, we are now increasing our focus on the cross-Service missions as they are visualized by the Commanders in Chief of our unified and specified commands. This not only requires collective oversight of so called Joint Programs, but it requires a new philosophy which will permit the advancement of operational concepts in concert with progress on system development--in particular, concurrent development of joint doctrine with our acquisition programs.

The challenge of achieving acquisition reform remains. The adverse trends in the length and instability of the acquisition process and in the cost and performance of its products reverse slowly. The 32 initiatives of the Acquisition Improvement Progran deal with long established habits and institutional biases which must be successfully redirected if we are to meet our goal. My statement today describes where we have made progress and where further action is needed.

Last year we briefly discussed with the Congress my philosophy toward research, development, and acquisition; my assessment of the critical problems we face; and the goals, priorities, and key thrusts I proposed to address problems. My basic philosophy remains unchanged; the goals and priorities and key thrusts remain valid. We need to build upon our progress. We will continue to drive hard to control costs, increase the responsiveness of our industrial base, avoid duplication, and achieve greater program integration. The economic, military, and management challenges we now face also mandate more rigorous application of concepts of interoperability, standardization, and integration than ever before in our history.

B. ORGANIZATION AND MANAGEMENT

The management reforms instituted by the Secretary and the Deputy Secretary of Defense in 1981 impacted significantly on our responsibilities for scientific and technical matters, for basic and applied research, for the development and acquisition of weapons systems, and on our responsibilities as the Defense Acquisition Executive.

Basic thrusts in the new management philosophy were directed toward integrated and balanced forces. Greater decentralization of management has been implemented, but at the same time increased emphasis was given toward improving an approach in defining resource objectives, increasing program integration and standardization, and achieving progress toward affordable modernization. We have organized and managed these responsibilities in terms of three basic functions.

Managing defense acquisition. Many initiatives are underway to improve the acquisition process and the organization of the Office of the Under Secretary of Defense for Research and Engineering to support our objectives more effectively. Our main thrusts, which will be described more fully later, have been to seek to focus mission area planning over the longer term, reduce cost growth, decrease hardware acquisition time, and increase program stability.

The modernization of our total force. Our combat personnel face superior quantities of increasingly capable Soviet equipment in almost every mission area. We must continue to redress that situation through every means at our disposal. We won't be satisfied until deployed systems are not only more capable, but also increasingly more reliable, supportable and operationally ready, and can be procured in adequate quantities at a cost the country can

afford. We have placed more emphasis on evaluating the benefits of applying evolutionary, lower risk technologies to achieve the military capabilities needed, as an alternative to higher risk, higher cost solutions at the frontiers of technology. We also need to develop, in concert with our allies, equipment which will provide for better integration of U.S. and allied capabilities.

The Technology Base. We view this objective as having two components. First, we must maintain superior science and technology which serve both as the source of options for our future acquisitions and as a hedge against adverse technological surprise. Second, we must apply our technology more effectively by phasing it into our deployed systems more efficiently and at the appropriate time.

In addition, we've taken actions to integrate industrial base considerations into the acquisition process, revitalize industrial preparedness planning, and to show industry through both plans and action that industrial preparedness is an integral part of our deterrent and acquisition strategies. While there are clear and proper limits to our relationship with industry, we continue to strive to do more to gain the benefits of a creative, competitive, and healthy industrial base.

Several organizational changes have been proposed within my office to more effectively exercise our major responsibilities. The proposed establishment of three Assistant Secretaries of Defense (ASD) reporting directly to me--one for Development and Support, one for Research and Technology, and one for Communications, Command, Control and Intelligence--will create a four-man USDRE top management team, to set the standards and pace, and to move toward the objectives set by the Secretary of Defense in the critical areas of acquisition management, modernization and readiness, and the Technology Base.

The proposed Assistant Secretary of Defense for Development and Support would be responsible for the management of our modernization plans and programs, including mission area assessments, and for emphasizing readiness early in the Research & Development (R&D) process including reliability, maintainability, sustainability and logistical support goals. He would assist in developing guidance on investment objectives to the Secretaries of the Military Departments, and in providing all of the participants in the acquisition process with analyses of the effectiveness of proposed investment programs in meeting broad mission needs. This proposed ASD for Development and Support would also serve as the Principal Deputy Under Secretary of Defense for Research and Engineering.

The proposed ASD for Research and Technology would manage our Technology Base; plan a comprehensive science and technology program, direct basic research, interface with the nation's technical and scientific community, and improve the transition of technology into our deployed systems. A key responsibility would be to assist the Services in developing advanced technology system options, and using technology innovatively to increase total military force capability. He would also serve as the Director, Defense Advanced Research Projects Agency.

The proposed ASD for Communications, Command, Control and Intelligence would be responsible for developing and integrating Command, Control, Communications, and Intelligence (C^3I) capabilities into each major mission area, as well as Defense Wide C^3I capabilities. Each Deputy Under Secretary for a major mission area is now responsible for total system acquisition, including associated C^3I and other support requirements, in his assigned mission area. C^3I specialists have been assigned to each mission Deputy to support that expanded role. We have found that overall C^3I development and coordination could be significantly improved with an ASD for C^3I who would have "cross-cutting" oversight to integrate C^3I matters across all mission areas. Similar

cross-cutting oversight has already been assigned to the Deputy Under Secretaries for Acquisition Management, Research and Advanced Technology, and International Programs and Technology; and to the Director, Defense Test and Evaluation.

C. SOVIET MODERNIZATION

The persistent Soviet force modernization program is of great concern. Over the past two decades, the Soviet Union and its allies have not slowed the growth in their weapons programs despite so called "detente" or other efforts to motivate restraint. A stable world environment is dependent on our maintaining, in concert with our allies, a credible overall balance of military capabilities. Our technology lead has always been a major factor in contributing to such a balance, but we cannot offset "quantity" with "quality" alone--Soviet numerical advantages are too great.

Figure I-1 compares overall defense expenditures of the U.S. and NATO with the dollar cost of defense for the Soviet Union and its Warsaw Pact allies. The U.S. is more dependent on its allies in seeking to maintain a balance at reasonable cost.

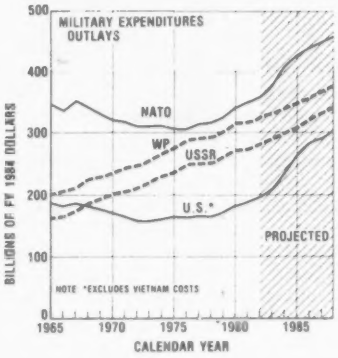


Figure I-1. MILITARY EXPENDITURES: OUTLAYS
A Comparison of NATO Military Expenditures with Estimated Dollar Cost of Warsaw Pact Defense Activities

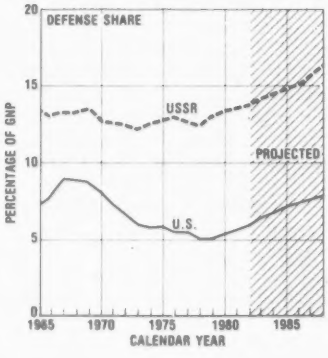


Figure I-2. DEFENSE SHARE: A Comparison of the Defense Fraction of U.S. GNP with Estimated Defense Fraction of Soviet GNP

Figure I-1 shows that the estimated dollar cost of Soviet defense activities has steadily increased about 3% annually for the past two decades. The economic burden of defense in the Soviet Union is much heavier than ours (See Figure I-2). In the Soviet Union, the share of the economic output allocated to the military has been at a level that allowed for growth in civil consumption. So long as economic growth proceeded at a rapid rate, military spending could even have risen faster without reducing civil consumption. Now with slowing economic growth, the Soviets are faced with some difficult resource allocation problems. But, we believe that Soviet economic problems alone will not lead to a substantial reduction in the growth in the military portion of their national resource allocation because Soviet military strength is the basic source of Soviet power and influence. They will probably assign an increasing share of their Gross National Product (GNP) to defense.

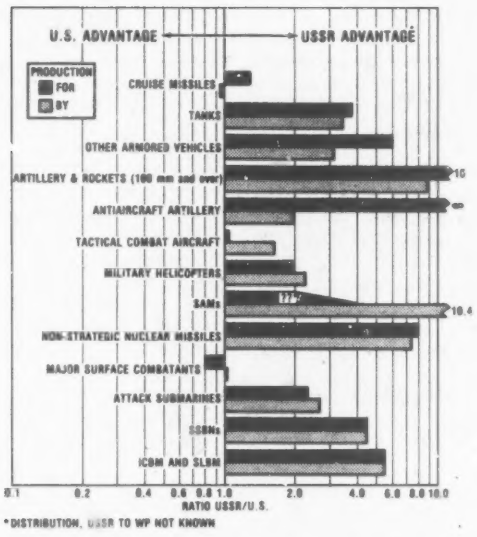


Figure I-3. Average Annual Production Ratios of Selected Weapons: USSR to U.S., 1978-1982

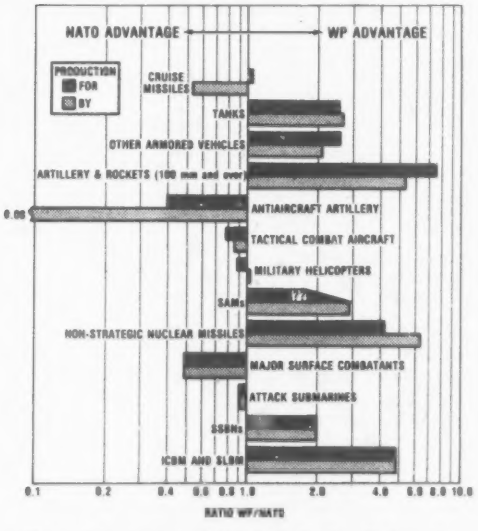


Figure I-4. Average Annual Production Ratios of Selected Weapons: WP to NATO, 1978-1982

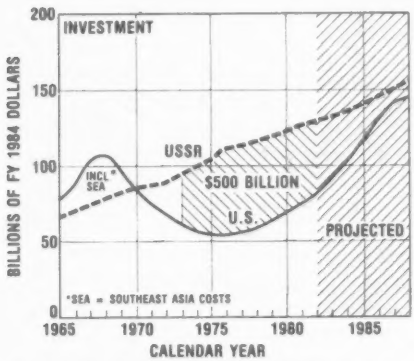
The Warsaw Pact has a lower "cost of doing business" (due to much lower personnel pay and other factors), and acquires more weapons and maintains larger forces within an overall defense funding topline which is actually less than NATO's when measured in estimated US dollars. We do not expect to match the Soviet Union tank for tank, man for man, nor in total numbers of missiles and aircraft. We must match the Soviet Union force structure through more effective usage of our modern equipment together with that of our allies.

The comparison of production of major classes of weapons in Figures I-3 and I-4 shows a Warsaw Pact military advantage of more than two-to-one in most classes. Except for major surface combatants, tactical aircraft and cruise

missiles, the USSR has substantially outproduced the U.S. in the period 1978-1982, not only in terms of the total weapons produced by it for all countries, but in terms of the weapons produced for its own forces. The situation is improved when NATO acquisition is compared with that of the Warsaw Pact. Of note is the fact that the USSR produces most Pact weaponry resulting in improved interoperability.

The investment imbalance (RDT&E, Procurement, and Military Construction) illustrated in Figure I-5 is striking. Estimated dollar cost of Soviet military investments in 1982 were roughly 60% more than ours and roughly $500 billion more than those of the U.S. during the past 10 years. This significant asymmetry starkly focuses the potential world security problem of the 1980s and 1990s because military investments provide a return for 20-30 years. Preserving our security for the next two decades, and beyond, is in no small way tied to the attention we now give to our military investments --both qualitatively and in terms of allocated resources.

The Soviets place great importance on closing the "technology gap." Figure I-6 shows the current estimated dollar investment in RDT&E by the Soviets is nearly double that of the U.S. Soviet military



NOTES: (1) INCLUDES RDT&E, PROCUREMENT AND MILITARY CONSTRUCTION.
(2) INCLUDES NON-DoD-FUNDED DEFENSE PROGRAMS.

Figure I-5. MILITARY INVESTMENT: OUTLAYS
A Comparison of U.S. Military Investment with Estimated Dollar Cost of Soviet Investment (Excluding Retirement Pay)

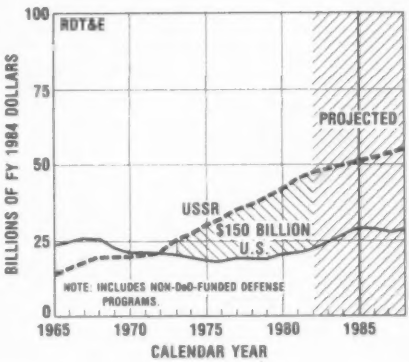


Figure I-6. MILITARY RDT&E: OUTLAYS
A Comparison of U.S. Military RDT&E with Estimated Dollar Cost of Soviet RDT&E

Research, Development, Test and Evaluation (RDT&E) has been increasing in real terms at about 7% per year since 1970, and has also been growing relative to total Soviet military investments during the past seven years.

Part of the Soviet technological advance is due to major and successful efforts to acquire the West's advanced technologies through espionage and by exploiting inadequately controlled transfers in the U.S. and abroad. Russian leaders have historically viewed technology transfer as a central element of their strategy for developing their military/industrial base. This deeply rooted concept must be taken increasingly into account by the U.S. in any effort to maintain a stable balance of military capability. Our current efforts to limit the loss of critical technologies to the Soviet Union are addressed in Chapter XI, but a basic point to be made is that fragmentary or uncoordinated programs of controls can only run counter to our fundamental

security interests. On the other hand, we need to maintain free exchange of scientific and engineering information among our technical community—so necessary for the advancement of our scientific base. This factor must be kept in the forefront, as we assess and implement new controls in the future aimed at delaying the transfer of technology to potential enemies.

Further assessment of the military RD&A balance in Chapter II, which follows, includes additional quantitative indicators which you can consider in forming your own conclusions about Soviet modernization and its impact on the military balance. The Soviet modernization program is a formidable challenge to peace, to U.S. security, and, in the most practical terms, a challenge to our collective abilities to find ways to deal with it.

D. A BALANCED APPROACH TO MODERNIZATION

Modernization means insuring that our own forces are equipped to meet the needs of today and those of a "modern" world of the future. The combination of forces, weapon systems, and equipments which the USSR and its allies are fielding and developing is based on an interest in dramatically influencing political and military environments in support of their worldwide objectives. For our part, we must take into account the ominous threats posed by the Soviets and the modernization of their forces, but we must also have a broader, balanced perspective of modernization. Our modernization goal is to have capable, affordable forces equipped to adapt to an array of changing environments, such as:

— New and evolving threats
— Technology that offers new opportunities
— Geography and space that bode new operational conditions
— Political/economic discontinuity, and
— Changing resource availability

There are obvious limits to the number of divisions, ships, air wings, nuclear missiles, and other forces which we can afford. The structure we maintain in the active, reserve, and national guard forces must not be short-changed in terms of basic categories of capabilities they will need to survive in future environments. Our forces, and those of our allies, must explore more effectively the possibilities offered by emerging technology. For example, a focus on modern munitions instead of new and better platforms can gain an order of magnitude in the effectiveness of our forces in a non-nuclear environment. Resource allocation decisions at the margin must reflect the priority which smart weapons technology should receive.

Modernization, readiness, sustainability, and the size of our force structure must all be kept in balance. Readiness and modernization are, in any case, not separable. Our forces must always be adequately prepared for action or movement, and they must be both equipped and supplied to face the new environments in which they need to survive and fight. Our fighting units must also be able to endure with minimum risk of force failure or lack of staying power.

Modernization means building the capability to adapt to the future—in the most effective, economical and balanced way possible. An affordable "modernized" force requires that it be equipped with a combination of (1) advanced technology where that is appropriate, (2) product improvements where these will make a needed difference, (3) new items of older model equipment still adaptable to the tasks ahead, and (4) older equipment which is still serviceable and suited to modern environments. The point being that to be "modern" a force need not be "brand new." "Modernization" might require new technology armor plate for a tank; but the tank driver's old model water canteen may remain quite adequate to the modern environment. Our approach to modernization seeks a balance between technical sophistication, essential readiness and endurance of our forces.

Technology thrusts which provide the U.S. distinct advantages and the opportunity for order of magnitude capability increases are receiving priority attention. Near-zero CEP weapons, battle management and information systems, and target acquisition technologies are available which will open up possibilities for reducing our reliance on nuclear weapons to deter threats in many cases where non-nuclear capabilities have been insufficient in the past.

The achievement of modernization requires adequate attention to strengthening the industrial base. Because we do not maintain large standing armies on the Soviet scale, we must place added reliance on our ability to surge our forces along with the equipment needed to sustain them. The capacity and readiness of our industrial base to support surge is critical to the credibility of our overall deterrent, and thus to the overall balance we seek. Of course, in those areas where production lead times are exceptionally long, we must acquire such systems for our existing force structure or stockpile them in adequate quantities.

Our thrust has been toward encouraging capital investment in the industrial base by the private sector. While we have not fully attained our goals, we have made progress in creating a cooperative environment. The details of our progress and programs are described later, but we would like to highlight the following:

- Goals have been established which will substantially strengthen our program, eliminate production bottlenecks and constraints, and include industrial base considerations into the acquisition process.

- Our needs have been identified for critical raw materials as a part of the President's National Materials and Minerals Program Plan.

- A Defense Industrial Property Council has been formed to streamline the management of government-owned industrial property in the possession of defense contractors.

In addition to protecting longer term options, we are pursuing a modernization objective to assure that we gain leverage from the application of improved cross-Service capabilities so as to insure adaptable forces now. We are considering overall mission area needs in parallel with the pursuit of acquisition programs. Available technology is then applied in a unified and coordinated way to avoid duplication and capitalize on the employment of the forces of two or more Services. This requires our strategic planning to increasingly focus on how our unified and specified commanders foresee solving their problems and fighting the battle. In considering the needs of the Commanders in Chief in the field and in assessing the various mission areas, our development programs are being served by direct inputs from the users in the field, during the full course of the acquisition process.

Through a balanced approach to modernization we are avoiding singular emphasis on any single part of the force at the expense of other elements. If we are to have balanced deterrence, we must provide for an integrated conventional/nuclear force modernization. In particular, we are emphasizing the integration of an enduring command, control, communications and intelligence capabilities into each mission area.

E. CROSS-SERVICE MISSION AREA PLANNING

Long range acquisition resource planning has been initiated as an important process toward establishing a comprehensive and coherent defense acquisition strategy. A number of actions taken within the planning process are moving us toward improved program stability; realistic budgets and costs;

definition of more completely integrated mission area requirements to include readiness, sustainability, and support functions which are prioritized and addressed in both the near and far term; and criteria for measuring progress. We have applied resource planning projections throughout development of the FY 1984-1988 program—in reviewing Program Objectives Memorandum (POM); and in preparing the Five-Year Defense Program (FYDP) and the Defense Guidance. With the assistance and participation of the OSD staff, the Organization of the Joint Chiefs of Staff, the Commanders in Chief (CINCs), and the Military Departments, we have established overall investment priorities for each mission area in the near and long term; we have identified gaps, unresolved problems, and issues; and we continue to assign action and give guidance on how to address unresolved problems. Last year's experience and continued iterations are improving both our resource planning and its application to specific mission areas.

Planning includes initiatives to re-vitalize industry's active development of their own long range planning, in all of its dimensions. This requires trend and capability projections into the future in order to foresee the dimensions and scope of the technical risks and technical threats which face us.

In evaluating each mission area we have looked across Service lines to determine ways in which the Services can work jointly to more efficiently meet mission area requirements. Examples of this are: Air Force contributions to fleet air defense, use of land-based B-52s in sea control; and the Land/Air Battle to include (1) 2nd Echelon reconnaissance, (2) target acquisition, and (3) coordinated attack by integrating Army, Air Force, and naval assets. We are continuing to identify new areas in which the Services can jointly meet mission requirements through program consolidation or unification.

1. Strategic and Non-Strategic Nuclear Missions

It has been over a year since President Reagan announced his comprehensive plan for the modernization of our strategic nuclear forces. His program was intended to end the relative decline of U.S. strategic capabilities, to begin the restoration of the U.S.-Soviet strategic balance in the years ahead, and to increase Soviet incentives to negotiate meaningful strategic arms reductions. Our strategic modernization program will develop U.S. capabilities well into the next century to meet the objectives of a coherent national strategy and serve as an effective instrument of our national policy.

The five mutually reinforcing elements of the strategic force modernization program include: improvements in our C^3I systems; modernization of our long range bomber force; deployment of more powerful and accurate Submarine Launched Ballistic Missiles (SLBM); improvements in the capability of our land-based Intercontinental Ballistic Missiles (ICBM), and upgrades in our strategic defense. This program stresses survivability and endurance; our focus is more toward the cohesive "management of our assets" with the purpose of lowering the significance of the relative balance in numbers of nuclear weapons between the U.S. and USSR; hence the top priority assigned to command, control, communications, and intelligence. Taken together these improvements will strengthen our deterrent posture and reduce the likelihood of a nuclear conflict by denying the Soviets any realistic prospects for gaining an advantage by initiating the use of nuclear weapons.

Non-strategic nuclear forces modernization is an essential element of our strategy, since strong and capable deployed nuclear forces in NATO and elsewhere help provide a credible deterrence against a wide range of potential military actions. Because of the relative growth of Soviet nuclear capability compared to our own, and the political and economic evolution in Europe, the modernization of our nuclear forces there is one of our toughest challenges. We require our nuclear forces to deter the Soviets from starting a nuclear

war. Our initial efforts continue to focus on NATO's long-range program for deploying both the Pershing II missile and the Ground Launched Cruise Missile (GLCM) in Europe to deter Soviet use of non-strategic nuclear weapons including their newly deployed mobile SS-20 missile systems. In addition to fielding new, more capable, weapon systems, we are working hard to upgrade the survivability and security of existing U.S. nuclear systems across the board, including C^3I. Recognizable improvements in non-strategic nuclear forces survivability are necessary to reinforce their deterrent effect, and reinforce U.S. efforts to secure meaningful arms reductions agreements.

2. Chemical Warfare Missions

Improvement of the U.S. chemical deterrent posture is essential to national security, and is an important ingredient in achieving a comprehensive, verifiable chemical weapons ban. Both the protective and retaliatory capabilities are vital and inter-dependent components. Our FY 1984-1988 Program emphasizes the production of defensive systems, as well as retaliatory chemical munitions, and will establish a Department of Defense (DOD) level funding and management system to deal with the national problem of chemical weapons demilitarization. Improvement of the nation's chemical retaliatory capability with modern binary munitions requires your careful consideration and support if we are to reduce risks to our overall deterrent posture.

3. Tactical Warfare Missions

Tactical warfare missions include land, air and naval warfare; special operations, and mobility capabilities. The priorities, accomplishments and challenges within each of these mission areas are discussed in more detail later. With the changing relationship between allied and Soviet force capabilities, we must strive for significant improvements in the West's ability to make effective use of our non-nuclear forces.

In the tactical warfare mission areas we have made fundamental new efforts to intensify management directed toward achieving necessary cross-Service integrated planning and consolidation essential to affordable modernization. We focused initially on achieving improved coordination and integration of counter-air and air defense capabilities, to include the integration of C^3I capabilities into an overall concept.

Another major mission area where unification is a reality is in deep land-air interdiction. This involves integration of surveillance and target attack radars, joint tactical fusion, and the consolidation of Air Force and Army smart weapons systems; namely, the Conventional Standoff Weapon and the Joint Tactical Missile System. Since all three of these joint program thrusts involve the development and deployment of new capabilities, we are also working on the integration of the systems with the doctrine and concepts for the Air/Land Battle. This integration effort is a pilot for insuring the definition of joint tactics, techniques, and procedures applicable in major operational theaters, and to insure that effective training is available when the systems are operationally deployed. To achieve these ends the Joint Chiefs of Staff and the Commanders in Chief in the field are working to establish an improved interface with the systems development organizations.

In addition to integrated planning of cross-Service capabilities, we are evaluating the tactical warfare mission areas to curtail programs where the return-on-investment in terms of performance cannot be justified with escalating program costs. At the same time, in order to make best use of modern ordnance and munitions, we are seeking vigorous pursuit of available technology to be applied to programs in this mission area. Toward this end we have established a directorate to facilitate and monitor the adoption of modern munitions in those cases of high payoff potential.

4. Communications, Command, Control, and Intelligence

Last year three reasons were cited for increasing the priority of C^3I capabilities: (1) increased responsiveness, mobility, and sustainability of our combat forces require more flexible, reliable, secure, and enduring C^3; (2) integration of the operations of available forces requires interoperability and connectivity of force management assets and those of our allies; (3) the need to resist and counter the existing and projected Soviet capability for electronic combat.

Consistent with this rationale, the integral nature of C^3I systems and the weapons they direct has been emphasized, as well as the need to develop and acquire C^3I systems in an evolutionary manner. We need to consider our operational commanders as the focus of each C^3I system—a principle which guides the development and integration of new force management capabilities. You will see that the actions over the past year reflect this emphasis. During FY 1982, a comprehensive review of Service C^3I programs was conducted as part of the mission area assessments prepared for Defense-wide C^3, electronic warfare, and Defense-wide intelligence. Four areas have been stressed in a complementary approach of developing total system architectures and acquisition plans.

- The DoD North American Air Defense Master Plan to provide improved surveillance and defense coverage against atmospheric threats.
- The DoD Plan For Intelligence Support to Operational Commanders was updated to address intelligence support deficiencies.
- The Services' electronic combat master plans and the work of my Tri-Service Emitter Suppression Study Committee are being used to develop integrated mission area investment strategies for an attack capability against communication nodes, sensors, and jammers.
- A number of studies to draw on the experience of industry, government and the Services, including analysis of Cruise Missile operations, and C^3 acquisition procedures.

Our advances in the area of command, control, communications, and intelligence also are designed to improve our relative ability to manage our forces in battle. We seek to exploit our ability to degrade Soviet battle management capacity, while also increasing our capacity for higher speed reaction, direction, and integration of our own force activities.

5. Science and Technology

In an important sense, the Technology Base is a major cross-Service mission area, and a central element of my job is to insure that we provide for the future by proper investment in the growth of this vital capability. In addition, the transition of technology into every aspect of our force modernization and into every mission area overarches the specific focus we have on the Technology Base.

As indicated earlier, the modernization approach we are following does not mean "high tech" solutions across the board. In many cases our forces can be effectively adapted to modern environments through a mix of relatively unsophisticated platforms combined with the most effective modern munitions suited to each job. Where modern delivery platforms are needed they can be deployed in combination with these capabilities. In any event, we should not adopt a blanket approach to technology and the problems it can or cannot solve or the impact of "complexity". Highly complex systems are sometimes much cheaper, more reliable, and easier to maintain—in addition to adding

significant new capabilities. In many cases new technology does in fact provide order-of-magnitude improvements in relative force capability. Careful and prudent planning of technology applications is needed to efficiently exploit the U.S. technological lead.

The first requirement is to invest adequately in the basic research that gives us technological options. Second, is to assess which technological opportunities offer high payoff. Third, is to collectively organize for the transition of technology into the field. The Defense Science Board has made an important contribution in identifying and correlating some of the emerging technologies that offer the highest payoff potential for the future.

More rapid transition of such technology into useful military products is needed. An example of our efforts to move toward this goal is our FY 1984 plan for initiating a Very High Speed Integrated Circuit (VHSIC) insertion program to provide demonstrations of this new technology in a number of applications. We will also be initiating a software technology program to improve the state-of-practice to achieve less expensive and more predictable development and support for more timely and less expensive software.

A number of actions have been taken to improve the DoD-University interface and help with the critical national shortages of scientific and engineering personnel. Also, in FY 1983 we entered into our first year of a five year program to upgrade deteriorating university equipment needed for defense basic research. We must continue our efforts to strengthen the national science and technology infrastructure upon which DoD is so dependent.

F. ACQUISITION MANAGEMENT

Our determined efforts to control acquisition costs and to reduce acquisition time so that we can deploy adequate quantities of needed systems are beginning to show progress. The key to realizing the full potential of the Defense Acquisition Improvement Program, formally established by the Deputy Secretary on April 30, 1981, is achieving implementation down at the working level in industry and within each Service and agency. Our efforts this year are directed toward working level implementation.

Although a fuller discussion of the progress of the Acquisition Improvement Program and its continuing challenges are contained in Chapter III, following are a few key points:

1. Reducing Acquisition Costs

   - Improved inflation projections based upon a defense "market basket" methodology have been developed with the Office of Management and Budget.

   - Planning and programming guidance has been provided to the Services emphasizing the need to cancel lower-priority program to provide adequate funding to our highest priority programs.

   - Increased emphasis has been placed upon competitive procurement to control cost growth.

   - In FY 1983 we proposed to Congress the 12 most promising programs for multiyear contracting and in FY 1984 we are nominating an additional eight programs. Our data indicate that this type of contracting can produce significant savings in unit procurement costs over year-to-year contracting.

   - Congressional recognition of large cancellation ceilings and inclusion of recurring costs in that ceiling permits more

effective implementation of multiyear procurements. Your support on this and the authorization to increase both RDT&E and procurement reprogramming thresholds provides both greater management flexibility and helps to reduce cost growth.

- We have established an Office for Industrial Productivity to focus on achieving productivity increases to reduce cost.

- Increased emphasis is being placed on initial cost estimates. Our estimates must be based on sound planning, sensible risk analysis, and tempered by realistic and honest thinking. Each Service is now required to utilize independent cost estimates in development of budget projections and to budget the higher estimate or explain their rationale for not selecting the higher estimate. Budgeting for technological risk is now implemented by each of the Services and will reduce cost growth.

2. Shortening Acquisition Time:

   - Strong DOD management emphasis and guidance in implementing Pre-planned Product Improvement (P^3I) along with Service cooperation resulted in the identification of many ongoing major systems with significant P^3I content being pursued in FY 1984. We shall continue to emphasize the P^3I content of the FY 1983 and FY 1984 new start programs because of the payoff in getting our new capabilities into deployed systems sooner and because of the extended life cycle it provides for major system acquisitions.

   - The adequacy of "front-end" funding for test hardware and software is now addressed in every Defense Systems Acquisition Review Council (DSARC) milestone review.

3. Improving Weapons Support and Readiness:

   - All Services are making solid progress in assigning readiness goals as design objectives early in all major programs. Directives and instructions are being revised to provide for independent readiness assessments to acquisition reviews early in development programs.

   - Service reviews assessing their experience in providing incentives to contractors to attain reliability and maintainability goals have been completed and are currently being evaluated.

   - In concert with my office, the ASD(MRA&L) has initiatives underway to improve early consideration and integration of requirements for readiness, support, and logistics associated with systems development and deployment. Front-end funding for assessing reliability and supportability goals for major systems is fully addressed as major systems proceed through Milestone I of the acquisition process.

4. Improving the DSARC Process:

   - We have better integrated the acquisition process with the Planning, Programming and Budgeting System. As an example, the Defense Resources Board reviewed Major System New Start proposals and as a result only 10 new starts were accepted this year, down from the 15 we accepted for Fiscal 1983.

As we enter our second year of restructuring the acquisition process, we remain determined to improve the reality and image of Defense acquisition

management. Affordable and efficient military investment in modern weapons remain fundamental elements of our military strength, and deterrence. Thus, to move toward our overall modernization goal, a major objective is to demonstrate that we can do the acquisition management job with increasing efficiency. Flexibility in transferring funds between procurement and research and development accounts, a request we made of Congress last year, is an area in which your assistance would contribute a great deal toward simplifying administrative procedures and removing bureaucratic inflexibility. Your support for maintaining topline stability, simplifying administrative procedures, and providing greater flexibility is central to improving the productivity of the acquisition process.

G. (U) INTERNATIONAL COOPERATION

As emphasized earlier, we cannot go it alone. A basic objective is to expand the scope and effectiveness of our armaments cooperation activities in a manner that advances our national interests and enhances the security of the United States, our allies and friends. Cooperation with NATO, and other allies, in areas of research and development will enable us to capitalize on the technological and industrial superiority of the U.S. and our allies and thereby achieve a high state of force readiness, sustainability and interoperability of U.S. and allied forces.

The principal challenges we face today are:

1. Implementation of armaments cooperation wherein industry-to-industry cooperative efforts work effectively and efficiently.

2. Establishment of a viable balanced armaments cooperation program with Japan.

3. Establishment of armaments cooperation programs with our less developed allies that are effective in achieving our and their national objectives. Increased attention is being given toward improving older systems currently deployed by lesser developed allies, as opposed to their purchasing newer, more costly systems.

4. Continuation of a balanced and effective armaments cooperative program with Middle East nations.

5. Protection of our technology from unauthorized transfer.

In particular, we now need greater emphasis on regional analysis supported by an overall strategic rationale for each region. Individual cooperative programs, to include co-development and co-production must contribute to overall regional objectives; but in many cases it may well be cheaper and better to upgrade older equipment for some of our allies rather than to provide them new equipment. Prudent planning is required to define the most appropriate solutions.

This introduction is concluded with yet another call for unified and coordinated efforts. A central purpose of the Department of Defense is to achieve cross-Service capabilities in the most efficient way that we can. In the years ahead, we must expand our horizon to make greater progress in cross-national, as well as cross-Service cooperation.

DISCONTINUITIES IN R&D BUDGET

Dr. DELAUER. First, Mr. Chairman, I would like to thank the committee for the support of last year.

We are well on our way to what we think is a stable acquisition program for the Department of Defense. This subcommittee was very instrumental in supporting the President's program in the 1983 appropriations.

There are some discontinuities. I might bring your attention to the fact that the continuing resolution of the last Congress had cut RDT&E by about some $8 billion and therefore some of the year-to-year percentage increases reflect the fact that the 1984 request was developed on the assumption that our 1983 request would be more near what we submitted and not what was finally contained in the continuing resolution.

So if you have some questions about that, when the time comes for questioning, I will be very happy to answer.

ACQUISITION ACTIVITIES

The No. 1 thing we are trying to do in this 1984 to 1988 5-year program is to provide a stable basis for our acquisition activities with programs that we know will be needed for the inventory and for modernization. We are phasing the RDT&E necessary to get them into production as soon as possible and then having a stable production program so we can buy them in the most economical manner. We feel that the program we have submitted reflects those characteristics.

The RDT&E portion is almost $30 billion in the 1984 budget, and represents about 10 percent of DOD's total request. These funds not only contribute to the modernization program, but also provide new systems to increase our readiness.

In the acquisition portion, there is $94 billion in the procurement funding request. Of this $94 billion about a third to a half is necessary for readiness. Included are operational spares, spares necessary for prepositioning and for sustainability. They represent about a third to half of that $94 billion. So while it shows up in the procurement account, it is necessary for readiness.

Last year I briefed this committee on what I was trying to do in the research, development, and acquisition job that I have, including the problems we face and the priorities we set. I am pretty much continuing that particular philosophy. I mentioned that a little of it was to insure program stability for the purpose of controlling our costs. I think that you will see that stability reflected in the latest submission of the systems acquisition reports, which will be out on the 17th of this month, a trend toward good controllability of costs on our major SAR programs.

This has been the consequence of a couple of things.

One, we have a much better estimate of what inflation to use for our particular market basket of products.

Two, the fact that inflation has been coming down helps. The accuracy of predicting what the inflation rate will be becomes less important as our inflation rate does come down therefore, we have better perciseness on what the future costs will be.

MODERNIZATION PROGRAM

Now as the Secretary testified to the committee last week, our program is one of deterrence and modernization. I would like to address shortly the whole question of what our modernization program entails, and then discuss some of the problems still facing us where we need help from you.

There are just three areas we can work with in controlling defense expenditures: We have force structure, modernization, and readiness. Those are the three elements that are necessary to support. There is not much else you can do in regard to any costs savings or any reductions unless you address one of these three elements of the Department.

If you want to delay modernization, it can be delayed, but it will cost more in the future just from the fact we are in an inflationary environment. Two, it will delay outfitting the force structure with a modern capability, and modernization is pretty much what is contained in the procurement account this year.

The first modernization effort is in strategic programs. I don't want to belabor the threat. You had that presented to you by the Secretary when he testified. We also have a briefing being given to Members of Congress by Generals Dalton and Gorman on the red/blue aspect of the threat and I think this committee with its interests has either had it available to them or will shortly. So I won't spend a lot of time on that. The threat is there, it is steady and it has been growing.

Our defense expenditures in constant dollars are about the same as they were 20 years ago. The Soviets have been increasing their expenditures year after year after year, and there is a great imbalance in the whole investment account.

On the Soviet's side, they are placing most of their emphasis on closing the technology gap. Our problem is that we lead in many areas of technology, but we haven't fielded the products resulting from this technology to modernize our forces.

STRATEGIC MODERNIZATION

As I mentioned before, the highest priority for us is strategic modernization we have a coherent program of increased capability with survivability, linked with a good system for a command, control, and communications. The modernization of the land-based ICBM is a major issue, and we will probably talk further about that in a moment. The modernization of the bomber force and deployment later in the decade, of the D–5 missile with the Trident submarines completes the overall strategic capability. Some effort is also being made in defense, and that combines with the rest to make a coherent program for the next decade.

If that program is carried out, and it represents on the average about 14 percent of the defense budget, by the end of the decade, we will indeed have provided a capability for a survivable strategic deterrent of sufficient capability that the whole question of arms reduction can become a reality. Thus, the basis of our whole strategic modernization program is to get the opposition to the negotiating table.

CONVENTIONAL WARFARE

In the case of conventional warfare, it is the reality of fleshing out the existing force structure. You heard a lot of discussion about "hollow" divisions with lack of equipment. This budget goes a long way in redressing that particular shortfall.

The older equipment is being phased out or phased down into Reserve and Guard units in the Army's case, and in the Air Force's case, to their Guard units as the new modern equipment comes to the first-line divisions and troops.

We are making a major effort in the area of conventional warfare for more cross-service doctrine and planning. Technology is now getting to the point where changes in doctrine have to be considered. The whole question of whether or not you can develop near zero CEP weapons with very low observable characteristics can change the whole way in which we do our business. This is all being worked on at the present time.

We haven't got the complete picture in that regard, because it does indeed require some changes in people's minds on how we do conduct combined operations. The same problems exist with sea lane support. The problem of protecting sea lanes not from ASW, but from land-based air is critical and we are working on it.

COMMAND, CONTROL, AND COMMUNICATIONS

Many of our programs are in the area of command, control and communications. These, by necessity, force us into a joint program with each of the services. This is the area I am spending quite a bit of my time on, because it is not an easy task to have joint programs. Generally the priority in one service for one program is not the same in another service, and we have to do a better job of planning how we handle that particular problem.

I would like to make a couple of points and then close my remarks and open it up for questions.

In some areas we need your help. One of them is the whole question of the chemical warfare mission. We have not received approval for production of binary chemical systems. We are requesting it again. We think it is absolutely essential because our assessment of activities in the recent past by the Soviets make it imperative that we do something to be able to provide a deterrent capability against their utilization. So we have included again this year a request to go ahead with development of modern binary munitions. We are buying protective clothing for defense and that will continue.

I have mentioned the tactical warfare missions, the question of battle management, Air Force/Army interaction, and the development of standoff capability.

Command, control, communications, and intelligence takes a significant portion of our resources, but it is probably the most cost effective and the most leveraged things we can do.

SCIENCE AND TECHNOLOGY

Let me finish with a little bit about science and technology, which is the foundation of the RDT&E budget. Our technology base

has been neglected. My two predecessors, Bill Perry and Mal Currie started a turnaround in the tech base area. I am trying to continue that goal by working to increase the effort in our tech base. It is one area that this country does have a leadership role. We have to focus on what these technologies can do for us in the future.

One of the areas that we are concentrating on is being sure that we continue the core programs. Those are the programs that compose the heart of the tech base, things that continue basic physics and things like that that lead to the next step which is essentially exploratory development.

In this budget we are putting more money into the 6.1 and 6.2 area, and we need your support.

IMPROVEMENT OF ACQUISITION PROCESS

Now, the last item is improving the acquisition process. Much has been written in the last few weeks on how we are doing the acquisition process, including complaints about whether or not the 32 Carlucci initiatives, are working.

I have with me, in case you are interested, an assessment on each of the 32 initiatives, including exactly where we stand, our assessment of progress, and what we think we can improve further.

Those initiatives are indeed taking effect. It is a slow process. Sometimes I get impatient as well as other people, that we can't move it along faster. In many cases there are some structural changes that have to be made and we are in the process of doing it.

I think the best and the most hopeful consequence of improving the acquisition process is the way we have been doing the resource allocation job in the Department of Defense. The Defense Resources Board activity, which in this administration includes not only OSD representation but the services, as well as the Joint Chiefs and is chaired by the Deputy Secretary, has led to a more coherent 5-year program. It is this activity that we are looking to for providing the stability that is needed to acquire things in the most cost-effective way. That process works and we are very satisfied with it.

Now in conclusion, our job is to modernize, to equip the force structure with the best we can for the money that is available to us. It is to acquire these products in the most cost-effective manner, as quickly as possible, and to provide enough capability to provide sustainability and readiness necessary to have a strong defense.

With that, Mr. Chairman, why don't I just open it up to questions and let you get at me.

"WINDS OF REFORM" ARTICLE

Senator RUDMAN. Thank you very much, Dr. DeLauer.

I am sure there will be many questions. My colleague, Senator Garn, has some time constraints. I am going to yield to him at this time.

Senator GARN. Thank you, Mr. Chairman.

Dr. DeLauer, I am sure you are well aware of the most recent edition of Time magazine, including their article "The Winds of Reform." Would you comment briefly on your opinions of that arti-

cle and then I would appreciate it for the record if you would submit a more detailed critique of that editorial. I simply labeled it an editorial. It is not within the magazine and I will defend the right of any news media, electronic or printed, to editorialize, whether I agree with their opinion or not, as long as they clearly label it their opinion.

That was one of the most distorted, one-sided, biased articles I have never seen, and if they had put a big editorial, Time magazine's opinion, fine, let them print it.

Dr. DELAUER. You made my speech. [Laughter.]

Now I would like to approach this unemotionally, but I am afraid I won't be able to completely. I am convinced that it is just another article in regard to bringing the whole defense budget and the need for defense along with the consensus that existed in the last couple of years toward defense, under fire.

You are certainly more aware than I am that those things aren't essentially generated out of thin air. There is planning that has to be done and there is setting the framework. If you think back over the last 3 weeks' activity on the subject matter and then all of a sudden out comes the cover of the magazine on a very dedicated but——

Senator GARN. And of course Newsweek beat them badly with a similar thing 3 or 4 weeks before and they got caught with their pants down. So they had to do theirs.

Dr. DELAUER. Do they have to do something? Now Mr. Spinney has testified to the Armed Services Committee. I think he is due to testify either tomorrow or today with David Chu in some other committee.

I have been quoted in that article as characterizing Chuck Spinney as a dumb systems analyst. That is true. Nobody asked me why I felt he was a dumb systems analyst. It is not a problem at all to be a systems analyst if you are interested in analyzing the past. The kind of systems analysts you need are the guys that take the past and do not extrapolate the future, but model the future, and then provide alternatives to the problems that are facing us based on the historical past. Then they provide a set of options that say, now if you go in this direction here is what we can anticipate and if we go in this direction, here is what we can anticipate.

Much has been said in that article about the high-low mix, which the biggest myth that has been forced upon the Defense Department in the last decade. The high-low mix doesn't exist, it never did. It starts out with the pie in the sky concept, that you are going to get something for nothing. It assumes you are going to buy a cheap article, and therefore, you are only going to worry about the cheap threat. Then you are going to buy some more expensive articles and you are going to worry about the higher threat. Unfortunately, that isn't the way the world runs.

F–16 AIRCRAFT

A perfect example of that is our F–16, which was bought as a part of a low end of the mix. The F–15 was the high end and the F–16 was the low end. Unfortunately, the F–16 is going to be utilized primarily in Europe. The weather is bad, a lot of the fighting has

to be done at night, and as a consequence, we are going to spend an awful lot of money making that fighter capable of flying at night in bad weather thus it is now no longer at the low end of the mix.

There has been a myth that the systems analysts in the previous administration have been pushing this high-low concept as a way to reduce the costs of defense. It is nonsense. It doesn't necessarily mean that you have to buy the most advanced of everything all at one time, but you have to have a capability. Your force structure has to be capable of being able to do the job, and that is not the case.

M–1 TANK

Everybody complains about the M–1 and the costs of the M–1. It was even referred to in that article. It has taken a long time for development. What people forget is in about 1973 there was a real fight going on someplace in the world and there were a lot of lessons learned. As a matter of fact, there were big tank battles. Lessons were learned at that time about what tanks should have. There were some significant changes made to the M–1 tank at that time. It was much better to make those changes then, before we really got into production than to have something that was inadequate just because we had decided what was going to be done before.

The whole question of electronic warfare, which is certainly not unsophisticated, was a consequence of the activity in the Middle East. As a matter of fact, our allies, the Israelis, were getting whipped pretty badly until we made available to them some of the countermeasure capability we have in pods on the A–4's.

So the question of that particular article saying that defense can be done on the cheap, and that in fact, all we have to do is pay attention to some of these oracles who can do some systems analysis in a particular fashion and show you that we have had some problems in the past, I think has been a disservice to the country. That is the short version. I will give you a much longer version in response to your questions.

Senator GARN. Well, I would appreciate a more detailed version.

[The detailed version of "The Winds of Reform" follows:]

TIME MAGAZINE ARTICLE: "THE WINDS OF REFORM"

The Time article, "The Winds of Reform," contains a number of statements on weapon system acquisition based on recent briefings before Congressional committees by Mr. Franklin C. Spinney. However, the bulk of the Time article also features some other somewhat misleading and unsupported assertions not attributable to Mr. Spinney.

Essentially, Mr. Spinney's historical analysis shows that there has been a systematic tendency to underestimate future weapon system costs. He also notes that the cost of weapon systems increases because of frequent design changes and changes in production rates. Mr. Spinney feels that the procurement budget should be re-priced to account for projected cost increases.

Many will agree that, in the past, DOD's planning figures were often optimistic. The evidence for this is contained not only in Mr. Spinney's presentation, but in the budget material that DOD provides to the Congress each year.

Recognizing that these problems existed in the past does not mean that we believe they will continue in the future. For the last two years, vigorous steps have been taken to deal with these problems systematically and decisively. Under the guidance of Secretary Weinberger and Deputy Secretary Carlucci, the Acquisition Improve-

ment Program (AIP) was initiated in April 1981. It is now an integral part of the way DOD does business.

The AIP initiatives entail streamlining the systems acquisition process (DSARC) to assure coordinated decisions on weapon systems, close monitoring of systems to detect signs of trouble, and integration of the acquisition and the planning/programing/budgeting processes. We are now using Pre-Planned Product Improvement (P^3I) to ensure an evolutionary and lower technological risk approach to systems acquisition. We have made significant progress in implementing multiyear contracting to reduce the cost of mature, low-risk weapons programs entering production by funding economical lot buys instead of small, piecemeal, annual buys. Estimated savings are approximately $4B. We are achieving more effective competition and use of second sourcing to improve the efficiency of weapon system acquisition. In addition, we are achieving more economical production rates, yielding a projected $2.3B saving in fiscal year 1983. We have several initiatives dedicated to improving readiness and support to make sure that the weapons we buy work when we need them. We have made great strides in budgeting more realistically by using independent cost estimates and realistic inflation rate forecasts to assure that DOD planning becomes more accurate than it was in the years covered by Mr. Spinney's historical presentation of trends. Lastly, we are increasing program stability, which is the ultimate goal of the Acquisition Improvement Program.

The initiatives outlined above address each of the key problems detailed by Mr. Spinney. Because these problems were years in the making, we cannot expect success overnight. Continued work in the DOD, in concert with support from the Congress, will be required to sustain this crucial management effort.

SOVIET ARMS BUILDUP

Senator GARN. Mr. Chairman, if I could, I didn't have an opening statement, but I would just like to take a minute to amplify my own views.

In my entire 15 years in public office I have watched the ups and downs of the defense debate, primarily a political debate. During that period of 15 years, including the 8 years I have served on Armed Services and Defense Appropriations, two things haven't changed very much in an overall sense. The Soviet's methodical military buildup has continued each and every year without regard to what we were doing here in our political debates.

When I first came to the Senate it was very difficult. We would go to the floor with the Defense Appropriations bill, and it was difficult to get through a lot of changes, a lot of cuts and a lot of the usual deferral of weapons systems and put them to some future Congress when they will cost more.

I sat through the hearings and the markups with this committee when we cut back and stretched out and cut production rates to where they were not very efficient and then an aircraft manufacturer comes back the next year and you have got a "$4 million cost overrun per airplane." We sit here self-righteously and talk about the military industrial complex and where do those cost overruns come from. They came from us. But we have got to pass the blame and we have got to find somebody to blame for our problems that we have created. We cut a production rate from 48 a month to 18 a month and then wonder why in the world the cost per unit went up.

RESPONSIBILITY OF CONGRESS FOR DEFENSE COSTS

Congress is the biggest culprit, in my opinion, for cost overruns in defense programs because of our starts and stops, our fits and our political gyrations that we go through as we go through ups and downs. We go back and look through the last couple of dec-

ades, and I think anybody who wants to be objective should remove their political philosophies or bias and just look at the facts of the appropriations process on defense.

I think anybody who is fair minded would have to conclude that Congress is in large part, responsible, unwillingness to go to multiyear procurement, unwillingness to change many of the procedures by which we procure, but more particularly, the short-term saving in defense money this year and some future Congress is going to have to worry about those big overruns 8 or 10 years down the road because we wanted to look good politically in the short run.

To me that is exactly where we are again. Some future Congress 8 or 10 years down the road is going to be faced with some horrendous cost increases because of the shortsighted decisions we will probably make this year without regard to the facts. Very few Congressmen or Senators are willing to even have a threat assessment. They are unwilling to listen. They don't understand the weapons systems. They don't understand the answers, let alone the questions, because they are not informed about these issues. I know private citizens who know more about the situation than a lot of us who are debating these particular issues.

I wish there was some way, some way that we could remove the politics from this debate and get an honest assessment. There is waste in the military. There is no doubt about it.

I can't believe that we get one minor official, and a lot of what Mr. Spinney said is true, and I could agree with a lot of his testimony, but Time did not bother to talk about the rest of his testimony about the need. He is criticizing systems and so on, but where were the quotes of Mr. Spinney. He sounded like a hawk to me in the latter part of his testimony, but that has not been quoted by the news media because that is not what they want to quote.

They have joined in one of their usual herd pack instincts. One jackal got a bite of somebody's butt and the blood is spilling so, wham, they all jump on it. The same story. Every network, every major national news magazine is going to print the same story every day. No originality. Nobody has got the guts to go off and look into some facts.

Maybe we ought to investigate John Kennedy and find out why in 1962, 48 percent of his budget was for the military. But Ron Reagan, I mean, my goodness, if he got every dime he asked for in his original program, which he won't, would go to 29 percent of the budget. But I guess that isn't news, that John Kennedy was a warmonger with 48 percent of his budget, which he was not obviously.

Any fair comparisons, percentage of the total budget, percentage of gross national product, any factual data you want to look at, but the news media and some of our colleagues are not willing to look at that because there are going to be fiscal conservatives on the backs of the military.

I really wonder if some minor official in HHS, Health and Human Services, if he came to testify about waste and inefficiency in food stamps and all the social programs, I wonder if his picture would be on the front page of Time? Oh, no; we have never seen articles like that. There is waste in every department of this Government.

CHANGES IN DEFENSE BUDGET

As I said, I told the President a few weeks ago there is room for a lot of changes in the Defense budget. I say that as a hawk, there is room for changes. There is a lot of waste and inefficiency, but by attacking whole weapons systems we won't eliminate the waste or percentage reductions, because it has been my experience that whenever we get into these cut fits that we are in now, you know, we will cut the level of the defense budget and when it is all cut and dried we will still have the waste.

We cut muscle, we will cut operation and readiness, we will cut procurement for the future, we will stretch out and cause future bulges in the defense budget, and when we are all through the fat level will still be there. We don't cut the fat. Whatever the level of the budget is, the fat is still there because we won't change procurement procedures and we won't look at the facts and the figures.

If I sound frustrated, I am. I really am because we are dealing with a real enemy. We are not even talking about the B–1 versus the Backfire any more. Their Backfire is getting old for them and they have got a new bomber that is going to be along.

Dr. DELAUER. Not only that, but they can build them faster than everybody thought.

Senator GARN. Certainly, faster than the two and a half to three a month, but they gave Jimmie Carter a letter that said that would satisfy them.

Dr. DELAUER. Sure they did. Wasn't that great.

Senator GARN. It really was. So let's undermine the START process and play games. I am sorry, I will stop, Mr. Chairman. My frustration level is so high over this. I wish there could be some intellectual honesty in this debate and there were some reasonable compromises we could come to rather than those who would spend every dime they could get their hands on for defense and the other side who thinks that all we have to do is kiss the Soviets on both cheeks, and I am not sure which cheeks, upper or lower, they would want to kiss——

[Laughter.]

Senator GARN [continuing]. I would like to see if we could get some honesty in this and an assessment of the threat and a judgment on the military budget on the basis of the needed threat.

So I thank the chairman for bearing with me, and I will have a lot more to say about this as the debate continues on the floor.

I would challenge the news media to attempt to be a little more factual rather than pumping their biases into the news stories. If you want to editorialize, at least label it an opinion when you get on the tube at night or in the Washington Post or Time or Newsweek, and then any fool thing you want to say is fine with me and I will fight for your right, your absolute right to say anything you want without any interference from anybody, as long as you label it an editorial, but try in your news stories to present a few facts.

Thank you, Mr. Chairman.

Senator RUDMAN. Thank you, Senator Garn.

MILITARY SYSTEMS PRIORITIES

I think that is precisely what this subcommittee under Senator Stevens is going to try to do. Over the next 10 weeks we will have a series of hearings to find if in fact we can reasonably assess priorities within whatever budget mark the Congress arrives at and do something that is reasonable. We need your help, Dr. DeLauer, in order to achieve that.

Dr. DELAUER. Mr. Chairman, I don't need to add anything to Senator Garn's agenda, but he did dwell on the point of understanding the issue before opinions are rendered. The most frustrating problem that I have faced in the last year was what I thought was the complete rejection of the superhard close-spaced basing for MX without really ever understanding the concept.

When you figure how much time Congress, other than a few members of some of the more responsible committees, spent on trying to understand what was being proposed, it appalls you. It really does. They did not take the time——

Senator GARN. Dr. DeLauer, can I interrupt you there——

Dr. DELAUER. You sure can.

Senator GARN [continuing]. And ask you if you would like to be on this side of the table and have the opportunity to question Congressmen and Senators about their knowledge of that system or any other system? How would you like to be able to do that?

Dr. DELAUER. I would love it, but I wouldn't love the process that it would take me to get there.

[Laughter.]

Dr. DELAUER. That is a hard road. That is not my bag.

MX BASING

Senator GARN. Just for the record, the President didn't want to come up with a decision on MX until the end of this year.

Dr. DELAUER. That is right.

Senator GARN. It was Congress that, first of all, moved it to July of 1983. Then we backed it up until December of last year. Then when it came out on December 1, the first criticism was it was poorly thought out, it was not studied sufficiently and he had rushed too fast. Then on the floor of the Senate and the House it was never really discussed that the issue was not the basing mode at all because the studies were not completed, and I had no basis to make a final decision on whether dense pack was good or bad. But the fact of the matter was it was not reported again in a factual matter.

The only discussion before the Senate and House of what was in the appropriations bills was did we appropriate money to build the first five missiles, nothing whatsoever to do with the basing mode. It was turned into a debate on basing mode when that was not the question before either body of the Congress. And it is a fact that the vast majority of Members of both the House and the Senate had no briefings on dense pack and it wouldn't have made any difference what method had been recommended. The political dye was cast and the same debate would have occurred if it was sparse pack or dense pack or whatever it was.

If there was ever an issue that made the point that we are dealing with a defense budget on virtually a totally political basis and the Congress is uninformed on these issues, get one of them and ask them to explain fratricide or anything else to find out how mealymouth politicians are and how unprepared they are to address most issues. They stick their finger in the wind and that is how they decide without any technical knowledge or background in these areas or most of the others they deal with for that matter either out of the defense area.

I am going to my other committee meeting, Mr. Chairman.

Senator RUDMAN. I am not sure I would want to be a witness at that next committee hearing.

[Laughter].

Senator GARN. No, I am going back to my responsibilities as chairman of the Banking Committee dealing with the poor financial institutions of this country.

Senator RUDMAN. Thank you, Senator Garn.

Dr. DELAUER. Thank you, Senator, very much.

Senator RUDMAN. I am going to yield to my friend from Wisconsin, but just before I do I would just want to understand one thing that you said in your opening statement, Dr. DeLauer.

Did I understand you correctly that your 1984 submission is based on the 1983 budget and not on the 1983 appropriation? Is this correct?

RDT&E BUDGET

Dr. DELAUER. For RDT&E, yes, that is right. The 1984 RDT&E budget was generated out of the 1984-88 POM process. As you remember, the budget was submitted just about the time the continuing resolution was put forward, and in that continuing resolution the RDT&E part was cut about $9 billion.

Senator RUDMAN. So essentially we may have to have some discussions with you if in fact we are going to reflect forward on the 1983 appropriation as opposed to the budget.

Dr. DELAUER. That is right.

Senator RUDMAN. So we are going to have to obviously get into the whole area of priorities with you.

PERSHING II

Dr. DELAUER. As a matter of fact, we have got some program things tht depended upon the Pershing II. But on the continuing resolution from October to December, the Army entered into a contractual arrangement with the contractor and then when the final continuing resolution for the remainder of the year was passed Pershing was taken completely out.

Senator RUDMAN. Well, the RD&A cut was $9 billion and the RDT&E cut was $1.7 billion

Dr. DELAUER. The RDT&E, that is the $9 billion part.

Senator RUDMAN. Senator Proxmire.

Senator PROXMIRE. Thank you, Mr. Chairman.

R&D REAL TERMS INCREASE

Senator PROXMIRE You are asking for a very, very large increase in real terms for research and development.

Dr. DELAUER. Yes, sir.

Senator PROXMIRE. I understand it is 23 percent. Have we ever asked for that big an increase in any one year in research and development before in peacetime, or in wartime for that matter?

Dr. DELAUER. We are not asking for a 23-percent increase in RDT&E, sir. From 1983 to 1984 we are requesting a 10.8-percent increase in RDT&E. The increase procurement is 34.4 percent, but it was a 34-percent increase last year from 1982 to 1983.

Senator PROXMIRE. Well, I am very interested to get that because the information that I have is apparently in error.

Dr. DELAUER. Let me try to get this thing straight, Senator, and let me answer you correctly. I was looking at the share of the budget. Let me look at the RDT&E year-to-year increase. Looking at total RDT&E, we are requesting an increase between 1983 and 1984 of about $7 billion out of $30 billion. So that is 25 percent. That is a large bit. I can't answer you whether or not there has ever been that large a percentage increase.

Senator PROXMIRE. It is certainly one of the largest we have ever had, and as I understand it, it is the largest increase in any component of the defense budget. Is that right nor not?

Dr. DELAUER. I think that is right.

TECHNOLOGY GAP

Senator PROXMIRE. Now you said in the course of your opening statement "The Soviets spend most of their increased spending on closing the technology gap."

Dr. DELAUER. They are now, yes. When you look at what they have deployed, Senator, in look-down/shoot-down capability in their fighters and in looking at the SA-10 deployment in surface-to-air missile capability, all those represent increased capability that is based on closing the technology gap.

Senator PROXMIRE. Isn't it true that they get much of that technology from this country one way or the other?

Dr. DELAUER. Yes, sir.

Senator PROXMIRE. I realize this is not a classified session. So I am not asking for any details. But do you have any general recommendations as to what we can do about closing that very frustrating situation where we spend billions on R&D and then it turns up in a few months or a very short time at least with the Soviets? As I understand it, more than half of their technological progress is based on what we develop.

EFFECT ON U.S. TECHNOLOGY FROM ESPIONAGE

Dr. DELAUER. That is right. I think there was some testimony in the Foreign Relations Committee the other day from three members of the administration: Bill Schneider from State, Lionel Ullmer from Commerce, and Richard Perle from DOD on this whole question of the technology transfer and what it means to the

United States, not only in defense, but the commercial aspects of it as well.

Our estimate is that about half of it goes out through espionage. They have a major program in technology acquisition in the espionage area. Another 25 percent of it goes out by leaking through the system by not knowing exactly where some of the products and techniques go, about 20 percent of it is lost through normal trade. All the licenses are proper, and the rules are followed and they still get some of the technology.

Senator PROXMIRE. Well now much of that goes out, as I understand it, from our friends, allies, trading partners, the Japanese and European countries and so forth with whom we sell technology. For example, yesterday in testimony before the Banking Commitee by the Machine Tool Builders, they said the Japanese and others continued to ship machine tools to communist countries. So the U.S.S.R. obtains the goods or technology and our national security is not protected. The Japanese firms gain profits which enable them to get a bigger share of the U.S. market, and all the while we pay for the defense of the Japanese and their allies.

Don't we have a very substantial leverage here in view of the fact that we are devoting so much to the protection of both the European countries and the Japanese and they are devoting so relatively little? Couldn't we use that leverage?

Dr. DELAUER. We are using leverage where we can, however, not so much with what I would call nondefense technology. Much of the Japanese technology, for instance, in machine tool technology is stuff that is not critical from a security standpoint, but it surely is from an economic standpoint. Much of the electronics technology that is being exported is in the nondefense area.

COCOM CONTROLLING MECHANISM

As you well know from your past experience, the Defense Department is about 3 percent of the electronics business and only 8 percent of the industrial business. So our ability to be able to control it is small. Now there is a controlling mechanism. COCOM is a controlling mechanism, and they have got COCOM signers of which Japan is one. We have been trying to stiffen up COCOM and Richard Pearle has been leading the parade on that, but we are having trouble with some of our allies——

Senator PROXMIRE. COCOM is a joke, you know. They have had one formal meeting in 25 years. They have got a budget of $500,000.

Dr. DELAUER. I know.

Senator PROXMIRE. We are talking about billions of transfer, and the advantage to the Soviet Union requires us to spend billions. Why can't we get more serious on this? Why can't we insist on using the fact that we are a far more important trading partner than the Soviet Union ever could be, and that our friends and allies get serious about COCOM and begin to restrict some of those exports.

Dr. DELAUER. Senator, you and I are in violent agreement on this thing. I have testified before you for many years and I think we couldn't be closer on any one subject that you and I have had a

chance to discuss, than this. We have been tough but I will take the same tack that Senator Garn did. If we are too tough, then they say we are being intransigent. The toughest Department for controlling technology leakage in export has been the Defense Department. As you are well aware, we have had serious discussions with Sweden. We finally got Sweden to create a situation on dual use technology. We don't have any problems with our partners and allies on things that are tied directly to security. They will control them. It is the dual use capability that is the problem for example, the digital switch in France, the air traffice control systems out of Sweden. Those are the ones that give us the problems. We have been stiffening up.

In Sweden's case, before we agreed to license the F404 engine technology, we had a lot of serious meetings both in the United States and in Sweden. They finally have come up with a control process for dual use technology for the first time in their history. As you know, Sweden has absolutely no export controls of nonsecurity items. They can put them in their briefcase and walk out. You don't even have to go through customs to export. Now we have got a process there.

Our NATO allies have been very good. We have had problems with espionage. We had problems with leaks, but not from an official standpoint.

I think the leakiest place in the world is Tokyo, and if this was a closed meeting we could discuss it further. As a matter of fact, may be we should. If this interests you, I would like to sit down with you or your staff and go over some classified information we have on just exactly where all the things are going.

Senator RUDMAN. Dr. DeLauer, if that is your wish, then I would think the committee would certainly be interested in that. Why don't we have our staffs schedule a closed meeting to discuss that classified data.

Senator PROXMIRE. Thank you very much, Mr. Chairman.

Dr. DELAUER. If you are interested in this whole technology transfer, then why don't Richard Perle and I come over and sit down and talk to you about it. We can lay out the documents and show you what is going on. As a matter of fact, there is a lot available to you as Senators, if you so desire.

Senator PROXMIRE. Very good. Well, I think to brief the staff would be very helpful, too, so we can get the details.

Dr. DELAUER. All right.

SOVIET PROCUREMENT AND MAINTENANCE PROBLEMS

Senator PROXMIRE. Dr. DeLauer, we hear so often about our problems with our own weapons systems, how maintenance hours are up, how vehicles are breaking down, and too often our equipment is not ready. As Under Secretary, I am sure you keep an eye on similar problems with the Soviet equipment so that we have a notion of what the threat really amounts to.

Let me ask you a series of questions about Soviet procurement and maintenance problems.

First, is it true that the Russian T-72 battle tank is slower than the older M-60 American tank, for example, 15 miles an hour versus about 20 miles an hour in sustained combat?

Dr. DeLauer. About the same. The T-72 never lived up to what was originally advertised as their capability. Now with the T-80 coming out, we don't know that much about them yet, but we have seen them and we are trying to get intelligence information on them. They did bring the T-80 out pretty fast. The T-72 in certain characteristics is very, very, good. They have got a good gun on them.

T-72 TANK RELIABILITY

Senator Proxmire. Let me ask you a few more questions about the T-72. Is it true that the T-72 breaks down 50 to 75 percent more frequently than our M-60?

Dr. DeLauer. It beats me on that, Senator. I have absolutely no idea on the breakdown rate.

[The information follows:]

T-72 Reliability

While there are no indications of the reliability and durability of the T-72 tank in the hands of Soviet troops, there are indications that the T-72 tanks employed in some Third World countries has proved to be a very reliable and durable piece of equipment. [Deleted.]

Senator Proxmire. That is the information we have.

How about the argument that the T-72 runs out of gas substantially faster than the M-60 and doesn't have the range?

Dr. DeLauer. Well, it is a heavier tank and with its size it has to have a lower endurance, just as we do on the M-1 because of the turbine.

[The information follows:]

T-72 Operating Range

The cross country range of the T-72 is rated at 320 to 480 km on internal fuel and 420 to 600 km when using internal fuel and external fuel drums. The cross country range of the M-60A3 tank is rated at 450 km.

T-72 AMMUNITION

Senator Proxmire. I am told that the T-72 can only fire 40 rounds for every 63 fired by the M-60. Is that accurate?

Dr. DeLauer. That may be the rate of fire, but I think there is a difference in the caliber of the gun.

[The information follows:]

T-72 Ammunition

The T-72 tank basic load is 40 rounds of 125mm tank ammunition. The M-60A3 tank basic load is 63 rounds of 105mm tank ammunition. The T-72 autoloader can load 6 to 8 rounds a minute. M-60 tank crews are required to conduct an engagement in under 10 seconds, which depending on the total rounds fired, equates to a sustained rate of 6-12 rounds per minute. These rates do not reflect the times required to locate the target.

SOVIET EQUIPMENT STORAGE

Senator PROXMIRE. Is it true that the Soviets put a lot of their equipment in storage and don't use it in exercises with the same frequence as the United States?

Dr. DELAUER. Well, the Soviets, particularly in Western Europe, have a tremendous amount of prepositioned equipment. That is right.

[The information follows:]

SOVIET EQUIPMENT STORAGE

The Soviet army employs and emphasizes stringent equipment conservation and storage procedures which, in general, limit both the quantity of vehicles in daily use and the number of kilometers they may accumulate. [Deleted.] The army has also developed a comprehensive storage preparation and technical inspection program, when properly observed, ensures the effectiveness of the conservation program. While the number of stored items withdrawn for maneuvers is dependent upon annual training requirements, unit mission, and manning levels, [Deleted.] The Soviet storage system does appear to accomplish the stated goals of reduced equipment usage, reduced maintenance and spare parts requirements, and reduced POL consumption. Reliability of equipment withdrawn from storage does vary among units and is dependent on traditional military factors such as unit strength, expertise of technical supervision, and the number of qualified maintenance personnel.

Senator PROXMIRE. Do Russian tank commanders get a lot less actual field time annually in their tanks than U.S. tank commanders?

Dr. DELAUER. You are going to have to ask the military that question. I don't recall much about their exercises.

[The information follows:]

TANK COMMANDER FIELD TRAINING

Soviet tank commanders are conscripts who receive four-to-six months training before joining their units. Training regulations for tank commanders in full strength units require 18–22 training days per month, about half of which are devoted to tactical training, driver training and gunnery. Actual lesson plans confirm that this is adhered to. Most of this time is spent in repetitive practice of basic drills on local training ranges. [Deleted.]

Senator PROXMIRE. Well, let me ask you, do you have operational readiness rates for major Soviet aircraft in comparison to major U.S. aircraft?

Dr. DELAUER. I don't think we do.

[The information follows:]

SOVIET AIRCRAFT

[Deleted.]

Senator PROXMIRE. Wouldn't that be helpful, because it seems to me that we get snowed with all the numbers and the numbers are important and they are very impressive. But it is my understanding that our readiness, poor as it is sometimes, is greatly in advance of theirs, as far as our ships are concerned and as far as our aircraft is concerned. In other words, our pilots fly more and our ships steam more.

Dr. DELAUER. Our ships and their ships are about comparable. I don't think you can argue much on capability in that regard.

UNITED STATES/SOVIET COMPARATIVE ANNUAL SHIP STEAMING DAYS

Senator PROXMIRE. For the record then if you could give us the comparative annual ship steaming days for major combatants in the Soviet versus the U.S. Navy.

Dr. DELAUER. All right. I will get some of these comparative data for you.

[The information follows:]

SOVIET SHIP STEAMING DAYS

Precise figures on steaming days for the Soviet Navy are not available. Much activity occurs in local Soviet waters, beyond the reach of consistent surveillance assets. Consequently no figures are available. Out-of-are deployments are recorded collectively by "ship days" but these figures are also limited. One ship day is a single day a single ship spends beyond local waters. However, in addition to actual steaming time, port visits and periods at anchor are included. It is not possible to eliminate the latter periods because our surveillance assets do not monitor each unit constantly.

UNITED STATES/SOVIET PILOT FLIGHT TIME

Senator PROXMIRE. How many hours a month do Soviet pilots get in their aircraft compared to ours? You see, the figures we hear on that, which I think is, and I think you would agree, is as important just as the number of planes.

Dr. DELAUER. No question. That is the whole concept of readiness.

Senator PROXMIRE. Sure, that is right.

[The information follows:]

SOVIET PILOTS

To maintain proficiency, Tactical Aviation pilots fly [deleted.]

DEFENSE CAPABILITY

Dr. DELAUER. As General Vessey says what makes an armed forces, as he testified with you before, was the caliber of the people, the training they receive and the equipment they use. All three go together to provide the capability of our defense. There is no question that the number of articles makes a difference.

Senator PROXMIRE. I always want the most accurate possible assessment of the Soviet threat. I think it ought to be just as balanced as possible, rather than stressing the fact that they do have an advantage in some areas. That is deplorable and we want to do all we can to remedy that, but they also have some very serious disadvantages that we tend to overlook.

Dr. DELAUER. My concern has been the rate they have been adding to it. Senator Garn talked about the Kennedy administration, and I remember at that time when we had deployed 1,054 ICBM's, the Minuteman and then the 54 Titans. I had charge of that ICBM program for TRW. We also had the job of counting and assessing the Soviet capability as one of the things we did. I can remember counting the holes they were building and they were working on about 950. This must have been about 1964 or 1965.

We came into the Defense Department and I had a discussion with a fellow that is criticizing everybody lately, and I said "what

the hell is going to happen when these guys go through 1,100?" He replied they will never go through 1,100; 1,100 is enough. We both have a sufficient deterrent force and they will stop at 1,100. They went through 1,100 at full steam, and you know how many ICBM's they have, how many they have deployed, and how many new models they have deployed.

Look, they work on a belt and suspenders approach. I can't help but agree with you that there are certain quality items that have to be considered as well as the others. But when you talk about quantity, they are there in spades.

CG–47 CRUISER WITH AEGIS AIR DEFENSE SYSTEM

Senator PROXMIRE. Let me ask you a question from another standpoint. According to a GAO report issued last week, the CG–47 cruiser with Aegis air defense system has been commissioned in January 1983 before the air defense system was adequately tested.

Is it true that the Aegis system has not been tested against live firing of the types of cruise missiles and standoff missile attacks that will be expected from Soviet aircraft and Soviet ships?

Dr. DELAUER. The answer has to be yes, in that particular way against those particular targets that might be expected because we haven't got target vehicles at this stage that represents the projected threat. But it has been tested against flying targets, that is against drones.

Senator PROXMIRE. Why didn't we think ahead and get target vehicles before we put it to sea?

Dr. DELAUER. In many cases we have not had a complete operational testing against the actual threat.

Senator PROXMIRE. Why not?

Dr. DELAUER. In some cases it is too expensive to get the actual threats.

Senator PROXMIRE. Would it have been in this case?

TARGET DRONE PROGRAM

Dr. DELAUER. Probably. Now we have got a target drone program which we will use. Target drones—I have got the information right here on how many target drones we are buying with this procurement account—and they will be used. But to get a very high-speed target drone, a supersonic target drone, is a very expensive proposition.

Now people argue that as a consequence, since it hasn't been tested on a continuing basis, and we have only tested it against target drones, that therefore, we have not assessed the capability of the system. That is nonsense, because you can do it just as well with simulation. You can simulate targets, and you can see what the reaction time is and everything else.

Sometimes, in fact, its just the inverse. We have shot down a drone with a laser. Taking this anology in the inverse, they would say that we have a laser weapon because we shot down a drone with a laser. Our problem is we haven't got a weapon. We have got an experimental device that has shot down a drone with a laser. To turn that around and make it into a weapons system is going to take a long period of time.

By the same token you can simulate a weapons system, particularly one that is like the Aegis even through it has been developed on land, because we have got a land test site up in Morristown, where they have flown aircraft against it. They have flown lots of things against it. That landsite of the Aegis system makes little difference because no one knows whether it is at sea or not at sea, whether it is sitting in the middle of New Jersey or sitting in the middle of the Atlantic Ocean. It behaves the same. The zero's and one's operate the same in the computer. The targets are picked up, analyzed, and the fire control system acquires and launches. We continue to do those in simulation.

As a matter of fact, for most of our weapons systems, the only cost effective way that you can continue to develop them is through simulation. You can't be firing targets at them time and time again. It is only when you get into the operational end that you need to do it to see whether or not there is any systematic things in the produciton of the equipment that makes it have different characteristics than we have tested in the development site.

PERSHING MISSILE SYSTEM

We are in that case with the Pershing right now. For all practical purposes, the Pershing II flight tests have proven the system. We have done everything we are supposed to do. We have gone the extreme range, we have acquired the target and we have done all these sorts of things. Now it is a question of whether we can build every single one like the last one.

Senator PROXMIRE. My time I am sure is up, and I yield.

Senator RUDMAN. Mr. Chairman, do you wish to make some comments at this time.

Senator STEVENS. Yes. I want to again say it is nice to see you here, Doctor.

Dr. DELAUER. It is nice to be here.

Senator STEVENS. I was out at Edwards on Sunday.

Dr. DELAUER. Rainy day, wasn't it.

F-15 AND F-16 AIRCRAFT

Senator STEVENS. It was. Now is that your business out there that I saw, the 16's and the 15's?

Dr. DELAUER. The XL's and the E's?

Senator STEVENS. Yes.

Dr. DELAUER. Yes. Did you see the advanced airplane, the modified 16, that goes sideways and spins around on itself?

XL-15 AND XL-16 COMPETITION

Senator STEVENS. I did see it. It lead me to some questions though, and the answers I got indicated that there was not a feeling there that this is really sort of a competitive thing between the XL and the 16 and the XL and the 15. Is that your opinion? Is there really a feeling that one of the derivatives is going to survive, or do you really feel that this is a new version of both the 15 and the 16?

Dr. DELAUER. I will answer your question directly, but let me give you a little background.

A little earlier Senator Garn asked my opinion in regard to the Time magazine article. Part of it was whether this high-low mix made any sense. I assert that the high-low mix was nonsense, and we got led down a path that hasn't got us where we would like to go.

Now in the case of those two airplanes, the 15 was the high part of the mix and the 16, remember, was going to be the low part. Now by the addition of the LANTIRN system on the 16 with pods, the existing 16's can be made to fly in all weather. Now when you take a look at the XL version of the 16 that puts it up in performance range more near the 15. It moves the 16 more toward the higher capability than does essentially the E model of the 15. In fact, it moves it much higher. The E model provides additional capability, but it doesn't make the delta change.

My view is I would like to see both airplanes modified for this. Whether we can afford it or not is something that I am talking to the Air Force about. I think the Air Force, not to prejudge their views, If they had their druthers from an affordability standpoint, would probably modify the 16 before they would do the 15. They have more of them, and it puts them up in capability and therefore, their total fighter force structure would have a higher overall capability. So I would think that would probably be the way they would trade it off.

Senator STEVENS. Well, I think I saw a 16 with an increased fuel storage capacity by modification of the wing, and some other changes that I am not sure whether you ought to be talking about yet or not, but it did appear to me that both of them were dealing with the same problem. Both the modifications to the 15 and 16 were dealing with the same mission.

I don't see anything wrong with trying to see which one should be modified, but I don't know why we would have to modify both of them for the same mission.

Dr. DELAUER. They probably won't. That is what I was just explaining. I think the Air Force, when they make the decision, are going to make the decision more toward the 16 because it gives them the bigger delta increase in capability for the money than does modifying the 15.

RETENTION OF A-10

Senator STEVENS. When I talk to the Army people they tell me just give us the A-10's. We are happy enough with the Air Force flying the A-10. Why do we need either one of these modifications and why don't we continue the A-10 line?

Dr. DELAUER. Well, I think the A-10 is an airplane whose time has come and passed. I think the amount of money being put into the A-10 could be better spent on providing that capability in the F-16 and cover more of the mission.

Senator STEVENS. Are you saying you really expect to get the F-16E derivative and get it on the line for less cost than the A-10?

Dr. DELAUER. No. I don't think you necessarily have to get the XL derivative of the 16, Mr. Chairman, to be able to get the 16 to

do some of the same mission that the A-10 does. As a matter of fact, the LANTIRN pod will do that.

It turns out that the A-10 cannot fly in all weather either, and to make it an all weather capable, you have to have the same pod that we are going to put on the 16. So right now, both of them are incapable of handling the interdiction mission, strike attack mission in bad weather. They can't navigate in bad weather and they can't navigate at night.

Senator STEVENS. If it is a deep strike air-to-ground, it is one thing, but if it is a close support concept, which is what I was talked to about, that doesn't take any deep penetration.

Dr. DELAUER. No, but it sure takes bad weather flying capabilities, and neither one of them have it right now. Both of them are visual flight capable. That is your low end of the mix.

Senator STEVENS. Originally that is what we made the A-10 for, wasn't it, close support, all weather?

Dr. DELAUER. But it is not all weather.

Senator STEVENS. I understand that, but if we are going to modify something, why don't we modify the thing they have already got?

LANTIRN POD

Dr. DELAUER. We are going to do that. That is the LANTIRN pod. The LANTIRN pod goes on both. You don't have to buy any more A-10's. We have got enough A-10's. You put the LANTIRN pod on it, and the LANTIRN pod now permits the A-10 to be used in bad weather and at night.

Senator STEVENS. If we have got enough A-10's, then why do we need to modify the F-16?

Dr. DeLauer. Because now you are going after the deeper interdiction, which the F-16 does, and the A-10 doesn't, and the deeper interdiction needs the night attack capability the same as the A-10 does for the close support mission.

Senator STEVENS. Well, it sounds to me like what you are really saying is that the F-16 derivative is going to take over for the FB-111. Is that it? [Laughter.]

Dr. DELAUER. No, sir.

Senator STEVENS. I just don't see this. A-10 is close support, air-to-ground and close support for troops, right?

Dr. DELAUER. That is it.

Senator STEVENS. The F-16 is supposed to take over that role?

Dr. DELAUER. No, it is supposed to do the deeper interdiction, the second echelon interdiction.

Senator STEVENS. Why shouldn't it take over the A-10 role, the close support.

Dr. DELAUER. Close support is the A-10 role. Deep interdiction against the second echelon forces some 30 or 40 kilometers beyond the FEBA is where the F-16 comes into the act.

Senator STEVENS. All right. Well, we will be interested to see it, and I don't know where we are going to get the money.

Dr. DELAUER. Well, that is another problem.

Senator STEVENS. That is our problem, yes, but it seems to me we ought to think about the money before we start fooling around with derivatives of two or three airplanes.

Dr. DELAUER. Well, I guess, Mr. Chairman, if we have got to figure out what it costs us to do it and how effective it is, we have got to spend a little bit of money to find out how to put that on the airplane to see how much it is going to eventually cost.

Senator STEVENS. Well, I have some other questions. I have to get back over there. Baker is not here and I want to get back.

I will tell you what I want you to do. I want you to set aside a day and I want you to go out with us. We will take this subcommittee out and look at Edwards and I would like for you to take another day with us and go up and go through New York and New England and see what they are doing up there because it seems to me we have got things going on in two different places that are sort of locked together.

Dr. DELAUER. That is right.

Senator STEVENS. Are you willing to take a couple of days this year to do that?

Dr. DELAUER. Yes, sir. I am at your disposal.

Senator STEVENS. No, he says we can't do that and have so many hearings, too. We will just cancel one of the hearings and we will be going out and coming back. We will call that a hearing, all right.

Dr. DELAUER. Why not. We can bring the whole committee and we can get on a DC-9 and go out there.

Senator RUDMAN. Dr. DeLauer, I am going to have a series of questions here that I am interested in, if you would keep your answers brief we might get through a number of them.

Dr. DELAUER. I will try to.

POLICY COST PROBLEMS

Senator RUDMAN. We seem to be having some very interesting cost problems in the areas that we are talking about that are in many cases related to the policy of concurrency between development and production of various systems. Now we can look at a number of systems, the Pershing, Tomahawk, and I am not saying they are either good or bad, I am just citing the systems, the IR Maverick, which we talked about with the Air Force yesterday, the infamous Viper, Harm, Stinger, and so forth.

There have been a number of very, very substantial cost problems associated with the concurrency decision. I know there were reasons for that decision that has been forced in many areas towards the facilitization long before the research was really completed.

Do you really think that policy is still worth it or do you think we ought to be more discriminatory on where we apply that policy? Are you in fact trying to be more discriminating in how you are doing that?

Dr. DELAUER. Concurrency has been both a fog eye for problems, and the hero for rapid deployment. I think there is no program that had greater concurrency than the Minuteman program. But

during that period of time, people were willing to spend the money for concurrency.

MINUTEMAN PROGRAM

Now in that case concurrency was funded in a particular way. We had parallel developments or second ways to do things. For instance, we only had three stages in Minuteman. Yet at one time we had five different engine concepts. The minute we selected one we canceled the others that kind of concurrency.

In the case of Minuteman basing, we were digging the holes before we were producing the missile. Now what was the consequence of that? In those days when we first put that Minuteman out in the holes, they were not hard, but we accepted that reduction in capability.

What has changed somewhat, Mr. Chairman, has been the standards of judgment. Now let's take the whole question of the ones you mentioned, IR Maverick, Harm, those sorts of things. What is being focused on now is the fact that we do not meet the maximum desired capability in the beginning. That is the IR Maverick case. As a consequence we have been spending a lot of time trying to get that thing into production while still being able to have the desired performance.

Now in the past we would have accepted shorter development time and zone into production. We would have accepted a lower capability in the beginning and increased the capability as we went out in time. I think this is the most cost effective way to do it.

So there is so much more than just the performance of the system. I think there is the question of getting it into the hands of the troops and getting them familiar with it.

The whole question of the M1 tank is another example. The power train has lower than specified performance values. But the fact that we got it out in the hands of the troops at that lower specified value, is one that is a cost effective concurrency. If we sat around and waited around until everything had met specifications as set down, we would not have them in the hands of the troops, and the delay would use more money.

I think the biggest problem we have facing us in our weapons systems business now—the Army particularly has the problem, much of it anyway—is the transition into production.

MAVERICK MISSILE SYSTEM

The Maverick transition into production also has been a problem. We first got hand-built missiles, and they worked pretty good, but when they came off the tooling, they didn't work as well. So that is why we restructured the program. We got rid of some of that concurrency in the rate production.

Harm is the same way. The transition into production was the biggest problem we had. We had some anechoic chamber testing, which was very expensive. It took time to figure out how they could do that cheaper.

Viper, the one that you have such an interest in, that does not have a problem with so much concurrency, but in my view, the spec is too broad. We are following your lead and your suggestion.

The fact is you can't have a replacement for the bazooka and something that can kill T-72's and T-80's frontal and still be carried by a man all in one piece of equipment unless it is pretty expensive. What we are doing now and what the Army is doing, as you know, is taking a look at how to replace the bazooka, and how we develop a capability for a hand held, antitank weapon. They may be different.

Senator RUDMAN. But see the problem that we have in that, and in others, and we won't debate that today because I don't think you and I have much to debate on.

Dr. DELAUER. No, we don't have a disagreement.

Senator RUDMAN. We spend, and I don't think probably the American people realize how these systems work and they must work. I am talking about procurement systems.

We go out, and you walk through a jet engine plant and find property of U.S. Government on all of that production of equipment and many other munitions plants. We go out and facilitize and pay for those facilities. Obviously in many cases we have to, and I am not saying that we don't.

The problem is we go out and we spend that money on facilitization and in some cases have found out much to our surprise that maybe the final cost of what we are doing probably exceeds the value of the system. With that kind of an investment, I can understand people in the Defense Department saying look, we have already spent $4 million. I mean it is not what we really wanted, but I guess we better have it with 80 percent of what it will do.

My question was simply directed, and I think we have discussed it fully and it seems to me that as we look at these systems that are now in development or coming out of development, that we ought to be very careful about committing to production until we are relatively sure that we are going to get at least a percentage of the rock that was originally specified.

Dr. DELAUER. Absolutely. As a matter of fact, Paul Thayer in taking his new job, was asked how he was going to emphasize the Carlucci initiatives. He told them that those things are pretty much in place, there are 32 of them and we have got to have some balance. On the other hand, the leadership of the Deputy Secretary on certain things can provide a real advantage.

So he asked, give me three or four that you think are the most important. My first choices were program stability and transition to production. That is where his experience is. His experience over the years has been going from one to the other. That is where his experience lies. Mine has been in spacecraft and the missile business, and not so much in large airplane manufacture. This is what he can focus on, and I think it will help.

I agree with you. I think we can make a decision on transferring to production and know before what it is going to cost us. As you are well aware, I charrered a Defense Science Board Study Group under Mr. Will Willeby from the Navy, who is probably the best guy we have on transition to production, to come up with essentially a set of criteria that we are going to use.

AMRAAM

Senator RUDMAN. On that question let's go from the general to the specific, and let me just see if we can apply what you have just said to that specific case. I am referring to AMRAAM.

Now there is a system which we are considering for production dollars in our request, and yet, if I am correct, it is a long way, maybe several years away from test flights. How do you do that in a way wherein you feel secure with making that upfront commitment?

Dr. DELAUER. Well, in the case of AMRAAM, we are doing things differently than we have in the past. Right from the beginning we had essentially, two competitors, Raytheon and Hughes working the thing together because the inventory objectives are big enough and the market is big enough that we will be able to have effective competition. We are also making them transition to production tooling very early in the process.

Now I testified last year, I think before this committee, that I did not approve, when I was on the outside, the way they ran the AMRAAM program. We spent almost $200 million for the competition.

The Air Force put in, I guess, about 80 and I think each of the companies put in about 80, which we of course had to pay for because we pay for bidding and proposal. Two hundred million in order to pick a winner, and then we were going to pick the other guy to follow.

It would have been much better for us to have spent that money on preliminary design to go into manufacturing, and to have then picked the best design. We could have decided we are going to build the best one, because there was enough data from simulation and modeling without building the missiles to just have a shootoff. We had the shootoff and what we are building isn't what we shot off, because the best missiles were different from the production models. It was nothing but a facade to say that we flew before we bought. It was nonsense. Everything we fly before we buy doesn't look like what we buy, because they are built for competition, and they are not built for field use.

The same say with Harm. Harm was a great demonstration. It was when we put that rascal into production with that tremendous capability in the front end and the testing necessary to cover the full spectrum of that capability. So I have been pushing on moving on to production tooling early in the process.

Tomahawk, notice the difference between Tomahawk and ALCM. ALCM went right on to production tooling. Boeing put the money into it and the Air Force put the money into it, and that is coming off of production tooling. Tomahawk is still being made in pieces and parts and this sort of thing. The difference between the two programs is obvious.

Senator RUDMAN. And are we now going to cancel that one.

Dr. DELAUER. No, no, no. That is another one. That is the one Senator Proxmire keeps chiding me on by asking why don't you cut out some of those programs. So I merged three programs to one and now everybody that is on the other side says, "what did you do that for?"

Senator RUDMAN. I didn't say that, I was just editorializing.

Dr. DeLauer. I know, OK. [Laughter.]

MULTIYEAR CONTRACTING

Senator Rudman. One last question and I will then yield back to Senator Proxmire.

You have been urged by the Congress in many cases and you have urged upon the Congress in other cases multiyear contracting as a way to save funds, to even out production and to get more reliability in your procurement. Yet, there is a danger that lurks, which we have discussed before, in multiyear contracting. That of course is that in many cases the multiyear contract from the contractor who wins that particular award is a result in a number of cases of a competitive pressure from someone else in the field who wants to get the technical package and go ahead and make the item.

Yet, if we expand multiyear broadly enough we will eventually eliminate many of those competitors from being interested in this type of procurement and thus eliminate the incentive, if you will, to keep the big fellows honest.

How do you deal with that?

Dr. DeLauer. I think in the generic case of multiyear contracting and tying one person into the thing for a long period of time is indeed a possibility, but those aren't the programs we are talking about. To give you an example, nobody expects us, to use anyone other than the present contractor, to build F-16's. Yet, on the other hand, we have just opened the competition for engines in the F-16 and F-15, which will go on for a long time, by fixing the fact that the engines can be competed. Because General Dynamics is going to be building F-16's for as long as we are going to buy it, why don't we face that issue and say that is a fact of life? We don't intend to put anybody else in that business, so let's pick that program up and figure out how we can make it the cheapest we can, and multiyear is a way to do it.

The first really successful multiyear program is just the opposite, the GAU-8 ammunition. As a matter of fact, it was mentioned in Time magazine, and it is the part I liked best, about the Time article. They didn't mention that fact when they gave this guy the big credit for developing the GAU-8 gun and everything for the A-10 and the GAU-8 ammunition and all this. We put the GAU-8 into multiyear contracting with two competitors before we were permitted to. But how? Each of those guys thought that they would swallow the termination liabilities if we terminated. They knew it wasn't going to be terminated. That is how we get most of our data on the GAU-8 ammunition between Aerojet and the other competitor.

All we are suggesting to you and Congress is that one of the criteria for multiyear is a stable program that we know we are going to buy.

Let's take the M1 tank. Why don't we multiyear the M1 tank?

ACROSS-THE-BOARD MULTIYEAR CONTRACTING

Senator Rudman. We understand why you can't do that but we wonder on a number of subsystems. Whether or not you ought not

to be competing on a regular basis. I am thinking of one that is recently on the terminal imaging sight on the M-60A3 conversions, and the Army makes a good case for multiyearing that.

On the other hand, the multiyear contract evolved because a competitor came in with a bid, whether realistic or not, that caused Texas Instruments in this case to get very, very concerned and come in with a long-year multiyear proposal.

Now my problem is that this is fine, that it keeps the prime guy honest, but what happens if we propose multiyear contracts across the board with too many of these subsystems and end up with having essentially a very small community. That has very serious connotations for the industrial base as well as for price.

Dr. DELAUER. That is right. Now in the case of Maverick, the Air Force wants to have a second source. One of the options was to take a single source on Maverick and be sure that we have multiple sources at the vendor level. As a matter of fact, that was the case of the Bradley. Remember the Army came in and showed you that FMC only represents about 25 percent of the cost. Seventy-five of the cost is in the vendor base. So you can arrive at the competition that everybody wants by getting competition at the vendor base even if you give them multiple sources and give them all miltiyears if you want to.

Multiyear is not to preclude anybody. Multiyear is to provide the economic ability to be able to buy out earlier things that are best done at a higher rate of production. That is the major advantage you get out of multiyear.

SOLE-SOURCE CONTRACTING

Senator RUDMAN. We are just as strongly suggesting that we understand that a number of major systems, certainly the carriers, some of the aircraft and the Bradley, evidently are going to be sole sourced in terms of the prime contract. We understand that. We are simply saying that in terms of multiyearing a lot of the subcontracts, that ought to be done very carefully to make sure that we don't dry up competition. We must continue to have as much competition as we can in the billions of dollars that are spent on the subsystems.

It is really a classic conflict. On the one hand you want a multiyear for the short-term game, but the long-term cost for drying that competition could be very difficult.

Dr. DELAUER. You are absolutely right.

Senator RUDMAN. You may answer that or comment on that.

Dr. DELAUER. I think you have to be very, very tailored on what you go to a multiyear on. I think it is immaterial whether you go multiyear to do what you are talking about as long as there is competition at the right level of acquisition.

Senator RUDMAN. Well, what we are going to do on this subcommittee this coming year is to examine very carefully the amount of competition being developed in the subsystems of all of these procurements because it seems that there is ample evidence that it saves real money.

Dr. DELAUER. I have requested some work from my staff on the whole question, so we are able to report to Congress on what level

of competition for instance, exist in sole-source contracting at the first and second tier of subcontractors.

You know, its difficult to get that information. Our reporting system does not permit it, and yet it is available. Now I have talked to the industry people, and I told them it was in their best interest to let us know how well we are doing in the competition business because people say we are not competing enough.

For instance, they say that a follow-on contract to one that was won in a competition is considered sole source. That is nonsense. The reason we have follow-on contracts is because Congress funds them only at a year at a time and with some long lead. So when you write the second year of a 10-year program you say that is sole source in the data base. That is nonsense. It was a consequence of competition in the first place. On the other hand, we don't know how much competition there was before.

I was on the original B–1. I was a supplier. The original B–1 contract was a cost-plus some kind of incentive fee to the prime, but the prime had me on a fixed price contract for what I was providing. It was a fixed price contract, but the competition was very keen at the subcontract level where I was.

Hughes did a study which is available on their own programs and found for every dollar they invested in multisources that they got $20 back on the program.

Senator RUDMAN. Well, that is certainly evidence that supports what we are trying to do.

Dr. DELAUER. We are pushing competition at the first and second tier as really the way to get competition, and not only that, but it helps the little guy. That is where you want to have it happen.

Senator RUDMAN. Senator Proxmire.

Senator PROXMIRE. Dr. DeLauer, I am delighted to hear that. Have you had trouble with Congress in pushing for competition? Haven't we prepped you for that?

Dr. DELAUER. The 32d initiative is yours, sir. I sat right here with Frank Carlucci and it was an oversight.

C–5A OVERRUN

Senator PROXMIRE. Well, we said why don't you have competition in there, and he put it in.

Now Senator Garn left the Congress open for what I think is a bad rap and he thinks is a good one. So let me just run over a few of these excessive costs and see if Congress was to blame.

We had a colossal overrun on the C–5A when we learned that the wings were defective and had to be fixed at a cost of $1.6 billion. Was Congress responsible for that?

Dr. DELAUER. No.

Senator PROXMIRE. In any way?

Dr. DELAUER. Congress?

Senator PROXMIRE. Yes.

Dr. DELAUER. Not in my view.

Senator PROXMIRE. That was one of the biggest overruns we have had, wasn't it?

Dr. DELAUER. Well, again, let's be sure we know what you mean by overrun. The same guy that gave us the poor estimate on the

Russian capability also brought us total package procurement, and the C-5 was a total package procurement. Remember, the contract was from cradle to grave, and the big fight on the competition was a question of whether the thing was going to cost $2½ billion or $2¾ billion. The fight was between Lockheed and Boeing on that thing. Whatever the price was that won the competition, everything from then on was on overrun. Noboy asked the right question at that time. Is that a reasonable price for this airplane? It was a price that was bid to win the competition, but not necessarily the price that it would take to——

Senator PROXMIRE. Now wait, I am talking about the wings.

Dr. DELAUER. From then on, yes. They made mistakes.

Senator PROXMIRE. They made mistakes and the mistakes were not——

Dr. DELAUER. And the overrun, the biggest overrun——

Senator PROXMIRE. I think Senator Garn makes a good point that where we stop and start and so forth there is no question that things cost more, but an awful lot of this is something that is the responsibility of the contractor or the Defense Department, changes in design or whatever.

We had tremendous cost overruns on the Trident submarine program and lengthy delivery delays. Was Congress responsible for those?

Dr. DELAUER. Well, I——

Senator PROXMIRE. Tell us. We ought to know.

Dr. DELAUER. I think you were partially responsible.

Senator PROXMIRE. How?

Dr. DELAUER. What?

Senator PROXMIRE. How were we responsible?

Dr. DELAUER. Do you want me to be candid about it, sir?

Senator PROXMIRE. Yes.

Dr. DELAUER. I think that you, particularly you, sir, supported Admiral Rickover in the way he was managing the program, and that contributed partly to the overruns, yes, sir.

Senator PROXMIRE. The way I supported Admiral Rickover?

Dr. DELAUER. Yes, sir. You were a great support——

Senator PROXMIRE. Well, I hope you will break that down a little for us, because of all the people who have ever served this Government, I think Admiral Rickover has been the strongest and most effective and smartest and most successful foe of overruns of anybody who ever was.

Dr. DELAUER. Not in the case of that particular submarine, sir. That was a tremendous battle both within the Navy and within the contractor, and part of it was the way the Admiral ran that particular program.

Now you asked me to be candid and I said that I thought was my opinion.

Senator PROXMIRE. All right, fine. I don't mean to intimidate or anything like that, and I appreciate your frankness on it. That is an assertion and I would like to have you document it for the record, if you could.

[The information follows.]

TRIDENT COST OVERRUNS

It is reprehensible for anyone to blame others for their own failures, especially to try to find fault with others when the programs for which they are responsible go wrong. In the case of the Trident, Congressional hearings did not lead to an early resolution of the problems that did occur. Any time contractual differences are aired in the Congress, resolution difficulties are compounded. The longer the contractual differences are left unresolved, the greater the cost uncertainties become. This was the case with the Trident.

Reference to you as being ". . . particularly responsible for cost overruns and schedule delay problems of the Trident . . . " was not an attempt to shirk any responsibility for the Department of Defense but recognition of the fact that DoD does not manage its programs "alone"—but in concert wih the authorization and appropriations authority and oversight of the Congress.

M–1 BATTLE TANK OVERRUNS

Senator PROXMIRE. What about the tremendous problems in building a new main battle tank and the cost overruns in the M1 tank. Is Congress at fault on that?

Dr. DELAUER. No, but I think that deserves an answer for the record.

In earlier testimony I alluded to the fact that in 1973, with some of the lessons learned in the Middle East some changes were made in the battle tank. The estimate of the M1 tank was made in 1970 before we made those change and before we really had a firm contract in hand. The overruns that everybody talks about is from that estimate made in 1970.

If you look at the actual contract costs that were signed up for in 1975, which was the first production contract that Chrysler signed at that time and the costs of the M1 tank as it is now, that overrun isn't that tremendous. In high overrun is from the original estimate in 1970. This has been a problem that I have had over the years as to what is the basis for the estimate.

In my view, the thing that should be use whether or not we are managing our affairs in a proper order is essentially a 5-year program. The cost estimate that we should be using is the first contract we sign that says we are going to build that article for this amount of money, not some estimate made before we have gone into the development phase, and someone guessed what it is going to cost.

Senator PROXMIRE. Of course our problem is that when we look at this we look at it also from the standpoint of when we make a commitment to move ahead.

Dr. DELAUER. Well, that is why I say only when we sign a contract do we make a commitment. Now sometimes that is about a year or so after the Congress has appropriated the money and therein lies the problem.

Senator PROXMIRE. Of course, we make our commitment when we appropriate the money.

Dr. DELAUER. That is right.

Senator PROXMIRE. And we make it on the basis, and that is why the buy-in's are so bad, we make it on the basis of the assurance that it will be at a certain level.

Dr. DELAUER. And I think there are other ways to be able to do that, and I am in the process of trying to work that out with Senator Nunn on a more effective basis.

HARM MISSILE COSTS

Senator PROXMIRE. Now the Harm missile was originally estimated to cost $150,000 each. I understand the cost is now estimated at about $1 million each. Is that true, and who is responsible for that?

Dr. DELAUER. The Harm missile at $150,000 a piece was based on some initial inventory objectives which I am not familiar with. The inventory objectives have changed and the price has gone up, but as far as $1 million apiece, that is only if you take a particular year's production and divide by the budgeted amount of money for the productive items.

Now this is part of the argument that we had on the analysis: if you facilitize for rate production and produce small numbers of articles off of it, your charge per article will be very high. But if you are planning to have inventory objectives of some 20,000 over a period of 10 years, then you will come down the curve. We have come down the learning curve in every single case, notwithstanding the things that Mr. Spinney said we cannot use. We can use them if we employ them properly.

Senator PROXMIRE. Do you think we will come down the learning curve enough so it will cost $150,000?

Dr. DELAUER. Our inventory objective I think, is now about 9,000. Is that number without spares—which is what you should say as far as unit cost is concerned, because that is the learning curve and that is where Mr. Spinney and I come apart because he wants to put spares in the learning curve, which is not the case—they are going to cost $253,000 each in 1984 dollars. They are not going to be $150,000, no.

What are the inventory objectives? Nine thousand, and I think the original inventory objectives were more than twice that. I don't remember because I wasn't here.

Senator PROXMIRE. So the cost would be about twice what was originally estimated?

Dr. DELAUER. Yes, for about half the number of missiles.

MAVERICK MISSILE

Senator PROXMIRE. Now the Maverick missile is generally estimated about $75,000. We have been told that that will cost more like half a million, or is that totally wrong.

Dr. DELAUER. As you know for the Maverick missile we want to start with a production of only 2,000 missiles to be sure that we have got enough tooling before we increase the rate.

Senator PROXMIRE. I have some others, including the AMRAAM missile, but I would like to wind up as quickly as I could though.

Aren't the estimates that I am discussing now exactly what analysts like Spinney have been criticizing.

Dr. DELAUER. Partly, yes.

Senator PROXMIRE. You said that he was a lousy systems analyst.

Dr. DELAUER. That is right. I didn't say a lousy analyst. I said a lousy systems analyst.

Senator PROXMIRE. Well, I wonder. The only reason you gave, as I understand it, is that it is sort of based on historical analysis, it is based on what has happened in the past; is that right?

Dr. DeLauer. And he says that it is going to happen in the future.

Senator Proxmire. Well, after all, you know, nobody can predict the future. If we could do that, we could be awfully rich. If I could tell what is going to happen to the stock market tomorrow, I wouldn't be hanging around the Senate. [Laughter.]

Dr. DeLauer. You can give me three choices. It can go up, it can go down or it can stay the same. Let me give you an example, to talk about this.

Senator Proxmire. All right.

Dr. DeLauer. You know if we use persistence forecasting, you will be right 86 percent of the time on weather. In other words you forecast today's weather for tomorrow. But that 14 percent can really kill you, such as they found out in California recently.

So what I am arguing about analysts is whether or not the analytical process is one of extrapolation of history which can lead in all directions. If you are coming down while you extrapolate, you are going to continue to go down, and if you are going up, you are going to continue to go down, and if you are going up, you are going to continue to go up. The whole question of inflation is a perfect example of that.

Senator Proxmire. But history has been a pretty good guide on those cost overruns so far. They keep coming right on schedule year after year after year.

Dr. DeLauer. All I can say, Senator, is that the SAR reports that we will show you on the 17th of this month, when they will be submitted to Congress, will show that we are indeed converging on negligible overruns.

SPINNEY BRIEFING

Senator Proxmire. Now I asked the Defense Department for a briefing from Mr. Spinney weeks ago and was told it could not be arranged. As you know, he recently testified before the Armed Services and Budget Committee after the threat of a subpena was made. Why was the Pentagon so reluctant to produce Spinney and will you arrange for him to brief my staff about the results of his analysis and provide us with copies of his study, including charts and tables?

Dr. DeLauer. I will take your request back, Senator.

Senator Proxmire. Well, why is it so hard? Why shouldn't he be made available?

Dr. DeLauer. What?

Senator Proxmire. Why shouldn't he be made available to a Senator when he requests that kind of——

Dr. DeLauer. Becaue it is just a segment of a broader analysis. I would be the first to admit that segmented analysis can be used in very strange ways.

Senator Proxmire. Well, why can't we meet with a Government official that we want to meet with?

Dr. DeLauer. Well, you can. We invited your people over to see Spinney. People can come over and sit down, but in many cases that is not satisfactory. For instance, we offered to have Mr. Spin-

ney sit down with people in their offices in the Budget Committee now and they refused. They wanted a public hearing.

Now if you want to meet with Mr. Spinney, I think I can arrange it in your office. I would be very happy to.

Senator PROXMIRE. All right.

One final question, and I apologize for taking so long.

Dr. DELAUER. They wanted the briefing as an open hearing.

CARRIER SURVIVAL IN NUCLEAR WAR

Senator PROXMIRE. Time also cites a statement by Admiral Rickover that carriers would survive about 2 days in a nuclear war. That statement was made, incidentally, before a subcommittee I chaired last year. Yet the Navy justifies its request for a 15-carrier force as necessary in case of war with the Soviet Union. According to Time, the entire $96 billion 5-year buildup of surface ships would result in only 70 more attack planes being available.

What is your comment on that?

Dr. DELAUER. My comment on surface ship survivability in which the carriers are included?

Senator PROXMIRE. Yes.

Dr. DELAUER. I think I am pretty much on the record. I think it is a terrible problem. Now having said that, let me further give you my views in regard to carriers.

I think carriers are a good buy. I think there isn't anything that is more cost effective for force projection than a carrier.

Senator PROXMIRE. We have 13 attack carriers now, isn't that correct?

Dr. DELAUER. Yes. Well, we have got about 12 if you count the 1 that is in SLEP [service life extension program].

Senator PROXMIRE. All right, say 12. We are being asked for two more, an enormous expense, especially when you consider not only the carrier but the planes on the carrier and the support fleet and so forth.

In view of the need for holding down spending as much as possible, do you still feel you can justify two additional carriers?

Dr. DELAUER. Well, I think you can if you look at the lifetime that they are supposed to be used—which can be almost 40 years in certain cases. Some of the ones we are improving right now, you know that we have gone through the upgrade on them, they are going to last that long. Yes, I think that you can argue that you need the two more carriers. However, when you argue whether you need 14 battle groups or 15 groups, that is a different discussion.

FORCE PROJECTION COMMITMENTS

Senator PROXMIRE. Here is one place where we always depart from any competition with the Soviet Union because they don't have anything like this. It is not a matter of matching them. We are way, way ahead of them. In firepower, probably 10 or 15 times as much in carriers as they have.

Dr. DELAUER. But we also have a lot more commitments than the Soviet Union on the basis of force projection. We have mission needs for force projection in the Atlantic, the Mediterranean, and

in all parts of the Pacific. There is nothing more effective than a carrier capability for force projection in peacetime.

Now the question is, What happens to survivability? That is always a question, and the Navy is looking at this very carefully because it is a question of what investment you make to defend the carrier.

Now the British had a very good way to defend their carriers. They got out of the way. [Laughter.]

Senator PROXMIRE. Mr. Chairman, I have some other questions for the record.

JVX PROGRAM

Senator RUDMAN. We will submit a number of questions for the record. We are going to have to wind this hearing up pretty quickly. I am sure that doesn't displease you, Dr. DeLauer. I do want to end it on one issue which I believe, in light of all we have been talking about this morning, is probably one of the most serious ones in terms of the decision that you finally make. That is the whole JVX program.

Last year we were told by that program office that in escalated dollars that could be a $45 billion program, which of course is enormous in terms of the entire projected defense appropriation.

I have really two questions.

Given current restraints, can we afford this system, not can we afford to go forward and see whether or not it works, but can we afford it if it does?

Second, as is presently structured, what kind of confidence do you have in the technical risks involved? In other words, can that technology, that tilt-roller technology be scaled up without any significant cost growth over what you are presently thinking?

Let me just add as kind of an overview to the whole thing. We understand only one team responded to the RFP and that really gives us some concerns if you have only got one small group working in this enormous area.

Dr. DELAUER. Well, everything you said is true. Now when the JVX was put together, I almost thought it was going to be an historic first. In some respects it is, but I think it has to be relegated to a museum. On my office wall I have a JVX joint letter signed by the three Secretaries of the services. I think that is the first time that has been done since Ceasar got together with his groups. Anyway, there it is. It says we are going to develop this thing jointly, and, boy, it was a great thing. We set the program office up and we got the Marines to run it and it started slowly unraveling.

What you said is indeed true.

The reason it was a JVX was because, and again I am trying to aggregate a bunch of activities and money being spent on various programs.

Senator PROXMIRE. We concur with that. We are just wondering whether it will work.

Dr. DELAUER. Whether it will work? Right now it is in terrible shape, not only with the constraints, but the fact that the Army has other things in mind. We started to pin down their mission and

their needs and they have pushed it out. There are some competitive technologies available to them that they would like to look at.

On the other hand, the Marines have a need that I am looking at other ways to satisfy. As you know, the original JVX portion of the program was a risk reduction portion. We had some milestones that we have got to do to see whether various concepts work. We wanted to have competition to see which concepts did not but only one team bid.

The question is whether we should institute a risk reduction program with one team focusing on that one technology or to try to compete the technology with some new technology coming along for the future.

CARLUCCI INITIATIVES

Senator RUDMAN. Well, if you look at the Carlucci initiatives, which I think they were excellent. I think if they are followed they certainly are going to help, and I expect that Mr. Thayer is going to be using them. But if you look at those initiatives and you look at what is happening now with the Army possibly getting ready to withdraw from it, there are some very interesting technological problems. That is an ideal candidate to be looked at in light of those initiatives to decide the affordability issue early on.

Dr. DELAUER. No question about it.

Senator RUDMAN. It is that kind of action I think that we haven't seen enough of. Some of the criticism maybe is irresponsible, but some of it is responsible. Senator Garn's statement about the waste and the problems, it is this kind of a program, if allowed to be developed by its constituency, and if we are sitting here 6 years from now and we are talking about it, that it is now costing x billions of dollars and it is still not working. Those are the kind of decisions, Dr. DeLauer, that it seems to this subcommittee, and the chairman, have to be looked at very carefully now if we are to continue the kind of SAR reports that you say you are going to give to us later this month.

Dr. DELAUER. No question about it. I think in the case of JVX we have to reexamine the effort to see if there is any way to satisfy the services' needs without going into a whole new development of a different kind. That is what bothers me about canceling some of these programs because nobody has a replacement. They wave their arms and say cancel the M1 tank. What are we going to give the troops?

SUBMITTED QUESTIONS

Senator RUDMAN. Well, Dr. DeLauer, we thank you very much for your testimony. We will have a number of questions for the record from the chairman and the committee.

Dr. DELAUER. And we will get them back to you.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

Cost Control

QUESTION: Dr. DeLauer, do you believe the budget before us provides an adequate allowance for inflation? Recognizing past and current inflationary trends in defense purchases, are the projections in this budget realistic?

ANSWER: Yes, we believe this budget is priced with realistic estimates of inflation.

Inflation

Question: In a variety of procurement accounts, funds are requested to cover higher than anticipated inflation on programs funded by Congress in prior years. Why is this a problem in view of lowering inflation rates over the past year?

Answer: With the exception of the Shipbuilding and Conversion, Navy appropriation, no funds are requested in FY 1984 to cover higher inflation rates for FY 1983 and prior year programs. Procurement programs are budgeted for future inflation based on projections provided by the Office of Management and Budget. Should these projections be inadequate, it is our policy to absorb the shortfalls within resources to the maximum extent possible.

Question: In the shipbuilding account alone, the request for prior year inflation is increasing from $209 million to over $375 million. With lowering inflation rates, why is this increased catch-up funding needed?

Answer: Immediately prior to submission of the FY 1983 budget request to the Congress, the Office of Management and Budget (OMB) issued new projections for FY 1983 and outyear inflation. Only a brief assessment could be made of the impact of these changes on FY 1983 and prior year programs due to time constraints. Later calculations, based on analysis of the impact on each individual ship type, indicated that funds requested in FY 1983 were insufficient to meet these indices. New OMB inflation projections, incorporated in the FY 1984 budget request, reflect the lower actual inflation experienced in FY 1982 and assume lower outyear inflation rates than projected for the FY 1983 budget. As a consequence, the shortfall against the FY 1983 OMB projections of inflation have been partially, but not wholly, offset. As stated, a funding shortfall of $375.6 million remains, as follows:

	($ in Millions)
TRIDENT	
FY 1977	10.0
FY 1978	52.4
FY 1983	4.6
	67.0
CVN	
FY 1980	5.4
FY 1983	82.8
	88.2

SSN	
FY 1977	5.2
FY 1978	.7
FY 1980	15.9
FY 1981	15.9
FY 1982	1.1
	38.8
CG-47	
FY 1982	62.4
FY 1983	76.3
	138.7
LSD	
FY 1983	1.0
FFG-7	
FY 1979	28.9
FY 1983	5.7
	34.6
MCM	
FY 1983	7.3
TOTAL	375.6

Controlling Cost Growth

QUESTION: Do you think the Defense Department's acquisition improvement program will really be able to control non inflationary cost growth? Is your annual 2 percent cost growth goal achievable?

ANSWER: We see the root cause of cost growth being excessive instability. Both industry leaders and the Congress have been telling us to make a funding commitment and stick to it, build up to an efficient production rate and stay there, commit to production at the start of full scale development, and stabilize the program. The excessive instability problem is basically caused by three factors - Soviet military investment significantly larger than ours, relatively flat DoD budget in unescalated dollars in the three decades preceding 1980, and the largely unanticipated effects of double-digit inflation in defense goods. This combination of reacting to the growing Soviet threat, inadequate defense budgets, and the effects of unanticipated inflation have led to the creation of more programs than we can efficiently carry. This, in turn, leads to instability. The cost growth resulting from past optimistic projections produced more instability stretchouts, and additional cost increases. It is a vicious cycle and a difficult one to reverse.

The Acquisition Improvement Program, with its 32 initiatives, has program stability as a pervasive theme. As a package, the management initiatives can meet directly and counteract the instability problems of the past. We do not claim that all our instability problems will be solved, but we have made some important changes to help alleviate these problems.

FY84 Major System New Starts

QUESTION: You said the Defense Resources Board accepted only 10 new starts which were approved for 1984. What were they? How many proposed starts did you deny? What were they?

ANSWER: The 10 FY84 major system new starts are: Anti-Tactical Missile, SHORAD Command and Control, Rattler missile, Follow-on Fighter Aircraft (VFMX), Vertical Launch Anti-Submarine Rocket, CV Helicopter (SH-60F), Modular Integrated Radar System, Space Surveillance, Advanced Tactical Reconnaissance System, and Higher Energy Upper Stage. No FY84 major system new starts proposed by the Services were disapproved. A major system is a weapon system which is estimated to cost more than $200M (FY80 dollars) in research, development, and test evaluation or $1B (FY80 dollars) in procurement, or both.

Program Stability

QUESTION: Your stated policy goal to stabilize major acquisition programs includes starting only programs that we can afford to complete. What are you doing to stabilize development programs? Give us some examples?

ANSWER: Our list of stable programs consists of the multiyear procurement programs already approved by Congress for FY82 and FY83, the new programs proposed for multiyear procurement as FY84 candidates, and additional FY83 candidates - there are 28 programs in all and they are all in the procurement phase of their acquisition cycle.

We feel that research and development programs by their nature contain technological risk, and that the term "stable" could be misunderstood if applied to them. However, we routinely examine the major R&D programs and make every attempt to maintain the integrity of the acquisition strategy established and approved for each one.

Accelerated Depreciation

QUESTION: 1. Your statement supports a more rapid depreciation on Defense contracts. Will that generate sufficient contract savings to offset associated loss of tax revenues? Has that been thoroughly analyzed?

ANSWER: 1. The depreciation expense acccepted as a part of contract cost has no impact on the depreciation expense that a contractor may deduct for tax purposes. Thus a more rapid depreciation for contract cost purposes would in no way reduce the tax revenues received by the Treasury from contractors doing business with DoD.

RDT&E Overview

QUESTION: The 1984 Budget apparently steps up the Department's commitment to improving the industrial base. Just how much of the procurement budget in total is devoted to upgrading and modernizing industrial facilities?

ANSWER: Approximately $1.2B of the FY 84 procurement budget is devoted to upgrading and modernizing industrial facilities. It is important to note, however, that total industrial preparedness funding in the FY 84 budget is $2.2B. This is an 83 percent increase over the $1.2B contained in the FY 83 budget for this same program.

QUESTION: What priority does industrial base improvement funding have, Dr. DeLauer? If procurement reductions become necessary,

would you prefer cutting back on this funding or cutting back on actual production?

ANSWER: Industrial base improvement has a relatively high priority from the standpoint that an efficient and responsive industrial base is necessary to support the major pillars of the Defense program: specifically, readiness, modernization, sustainability and forces. Industrial base improvements have been linked to these programs and therefore are not treated as mutually exclusive programs. It is our objective to achieve a greater balance in investment by taking this approach. Failing to make prudent investments in capital equipment or undertake facility modernization could result in higher weapons unit cost. This could necessitate a cut back in program and advantages for improving industrial responsiveness for surge or mobilization would be foregone.

QUESTION: Do current and projected rates of industrial capacity utilization indicate defense industries can sustain the proposed weapons buildup throughout the next five years?

ANSWER: The Department of Defense has undertaken an exhaustive assessment of industrial capacity in connection with current projected defense related expenditures. The results of this assessment concludes that there will be sufficient capacity to satisfy defense requirements. A recent report by the Congressional Budget Office (CBO) "Defense Spending and the Economy", confirms this condition based on macroeconomic forecasts. The Defense assessment as well as the CBO study, however, indicates that some bottlenecks may occur in smaller industries specializing in defense production.

QUESTION: As the economy continues to recover, will our industrial capacity likely exceed or fall below historic average utilization rates, in your opinion?

ANSWER: Based on our economic forecasts and the recent Congressional Budget Office report "Defense Spending and the Economy", capacity utilization will remain below the 85% threshold typically associated with full employment. We are optimistic that in industries where capacity utilization trends are increasing that new capacity can or will be established to meet the demand. The available evidence indicates that capacity in place in the defense industries and planned expansion are sufficient to accommodate the proposed increases in defense spending without creating widespread or extreme inflationary pressures in these industries.

HIGH SPEED ANTI-RADIATION SYSTEM (HARM)

QUESTION: What are you doing to get the HARM program and its costs under control and what specifically is the department planning to do with the $80 million earmarked last year to establish a second source of production? The Navy apparently thinks HARM is not affordable. What do you think?

ANSWER: Several actions have been taken by OSD to control cost growth on the HARM program. We have accomplished a review of the management structure and determined that cost control is the driving force in current program management decisions. We have also reviewed the Service cost estimates on the HARM program and found them reasonable. Currently, we are engaged in a review of HARM in preparation for a production decision on the HARM program by the Secretary of Defense. A key item under review is the estimate of the benefits

that will accrue from developing a second prime source for the HARM missile. As you know, I strongly advocate the use of competition to control the cost of defense systems. However, I also recognize that there are situations where the cost of developing competition cannot be paid back because of insufficient production quantities. On the HARM program, we have kept our options open by preparing for the introduction of competition at both prime and subcontractor levels. At the subcontractor level, competition is already providing us some return on our investment and we expect considerably more within the next few years. The determination of the cost benefit of completing development of a second prime contractor is nearly complete. The Navy is expected to provide OSD the final data on that matter within the next few weeks. When a determination is made, Congress will be notified on the need for the $80 million of FY 1983 funds appropriated by Congress to develop a second source of production. In the interim, all actions necessary for the award of a contract for a second source will be completed.

I think the HARM missile is affordable. What I believe we cannot afford is a change in course that would deny our Navy and Air Force pilots the capability provided by HARM.

Procurement Programs

QUESTION: Members of the House Appropriations committee have recently charged that the Navy has been hiding the extent of F/A-18 programs costs from Congress. What is your view on these assertions, and if true, what should be done about it?

ANSWER: Secretary Weinberger, in response to the charges of the Appropriations committees charges, ordered the Inspector General to conduct a complete investigation. The investigation has not been completed and it would be inappropriate for me to speculate on the charges without the investigative information.

QUESTION: What has been learned to date from the investigations requested by the House?

ANSWER: The Inspector General has not published any preliminary findings to date and we have not been briefed on their progress. When they complete their investigation, there will be a report on the findings.

QUESTION: Critics also challenge the performance of the attack version of the F/A-18, and there is a lot of talk about rescoping the production program in favor of accelerating and extending A-6E production. What's happening? When will we have the Department's decision?

ANSWER: There has been an ongoing study for some time that has been looking at the desired mix of aircraft in a carrier air wing. The mix varies somewhat depending on the anticipated threat for a certain part of the world. In certain scenarios you would want a force that had very long range striking capability and in other situations where the air threat is greater to the carrier

battle group you would want more fighter support. Some scenarios would favor the A-6Es longer range and others would favor the F/A-18s versatility. We expect to have a decision on the F/A-18 program in the very near future.

STINGER - POST

QUESTION: Last year the Committee wanted to withhold Stinger-POST production funds because of poor test results. What has persuaded the Defense Department not to release the program dollars Congress finally provided? Are there still problems?

ANSWER: There are no problems with Stinger-POST performance. A production decision was made January 24, 1983. On February 10, 1983, the Army awarded a cost plus incentive fee (CPIF) Contract in the amount of $4,612,390.00. This contract was an Initial Provision of Facilities (IPF) project for production line set up needed to transition from Engineering Development into production. The Army is presently looking at several acquisition strategy options before proceeding with a production contract award. A specific strategy decision is expected by mid-April 1983.

PERSHING MISSILE

QUESTION: Congress denied 1983 production funds for the Pershing II missile, but the Army is continuing on the 1983 contract signed under the first continuing resolution. What is the Department doing to resolve this funding problem, and more importantly, what are you doing to control production commitments until Congress can review this program?

ANSWER: The conference report which eliminated the funds from the budget indicates a full commitment of the conferees to TNF Modernization and provides for a review of this decision upon receipt of successful flight test data. The Army has now conducted four consecutive successful flight tests in which all primary test objectives have been demonstrated over the flight envelope. As a result, DoD will submit a FY1983 Supplemental request to Congress shortly requesting the FY1983 production funds previously denied.

With respect to controlling production commitments, the Army's efforts to reduce expenditures against the FY83 production contract are premised on the condition that all contract commitments will be met. The reduction in expenditures has been brought about by delaying hardware orders until the latest possible time. Thus, piece parts which previously would have been ordered, stored for a short period, and then used are now being ordered later and used upon receipt. By slowing the rate of expenditure the Army can reduce outlays up to the point of zero slack which occurs in mid-May.

1983 Program Supplemental

QUESTION: No one seems to know one day to the next what the Department is going to do on the supplemental. What is your understanding of the schedule, program content, and Army multi-year authority request?

ANSWER: The specific details and justification of the supplemental are being worked on and will be forwarded to OMB for approval and Presidential transmission to Congress.

SAC

QUESTION: The Navy is in the process of restructuring its TOMAHAWK Program essentially by putting the Conventional Land Attack Missile back into development. What is your assessment of the need for the Conventional Land Attack TOMAHAWK and the likelihood that satisfactory accuracy achieved in the terminal maneuver to make this weapon cost effective?

ANSWER: The TOMAHAWK Conventional Land Attack Missile (TLAM/C) is being developed and procured to counter the threats to U.S. Naval forces posed by targets ashore, such as ships in port, fleet command and control centers,logistics installations and support facilities, industrial facilities and ground based air defense systems. This variant of the TOMAHAWK family will provide substantial warfighting capabilities in the form of a stand-off weapons system of high reliability and accuracy. The military requirement for the weapon has been well validated. The early models of TLAM/C (BLOCK I) will be equipped with a single (unitary) 1000 lb. warhead. Later improved configurations (BLOCK II) will possess a capability to attack in a Terminal Dive Maneuver (BLOCK IIA) and/or employ a Sub-munition Dispenser (BLOCK IIB). Both of these improvements will add greatly to the military utility of TLAM/C. At this time, Defense is confident that the accuracy of the weapon, both in the Terminal Maneuver as well as during sub-munition lay-down, will be more than sufficiently accurate to meet cost effectiveness criteria.

DDG-51 Destroyer

QUESTION: The fiscal year 1984 request includes $99.5 million for advanced procurement on the DDG-51 lead ship destroyer. Why is the Department requesting these funds at a time when the basic design requirements have not been settled?

ANSWER: The funds ($99.5 million) contained in the fiscal year 1984 budget request for DDG-51 lead ship destroyer are necessary to meet the planned procurement of the first ship in fiscal year 1985. This was based on the expected firm conformation of the DDG-51's characteristics and specifications at the end of calender 1982.

QUESTION: Preliminary estimates are $1.4 billion for the lead DDG-51 destroyer and over $1 billion for the planned 62 follow-on ships. Do you consider this to be reasonable and affordable for a destroyer program?

ANSWER: The Deputy Secretary of Defense has previously authorized the Navy to proceed from concept to preliminary design stage with the understanding that they would examine ways of getting the size and costs of the DDG-51 down so that it would be affordable in the numbers required. The Service has not been successful in this endeavor and the Secretary of the Navy has directed that the in-house design team continue in its efforts to meet that goal. This increased task could cause some delay in the program, but should result in a more affordable and yet capable ship.

JVX Program

QUESTION: How can we ensure the JVX program costs won't escalate, when there is only one contracting team responding to the RFP? Shouldn't we do more to encourage competition in such a large program?

ANSWER: There is no way to absolutely guarantee that the cost won't escalate--the fact that there might only be one contractor working during the first 23 months of the program is not the sole, or necessarily dominating, factor. Programs have gone off the cost mark when more than one contractor was involved in development.

Our program strategy has always planned to narrow down to one contractor upon entering full scale development, 23 months from now. While having two contractors to compete for entry into full scale development may help to hold down costs in that phase, it is no guarantee of controlling costs in the production phase of the program where the greatest costs will be. When two contractors are competing for a development contract, there is always the possibility of a "buy-in". Development programs are usually run on cost plus type contracts and there are other means to control costs than just the going in competiton.

There are certain advantages to having only one contractor working on a program. When there's only one contractor, the government can get much more closely involved in what he is doing by cross-checking his engineering and analysis, providing him the assistance of the government's experience, making him redesign things if you don't like what he's doing, and so forth. That can't be done if there's a competition going. You have to pretty much sit back and wait to see what each competitor comes up with at the end. We've seen situations like this where both contractors made similar critical design errors which cost a lot of money in the end. While competitive development is a great sounding phase, it is certainly no panacea.

The keys to controlling costs are not fancy concepts; they are close scrutiny and project discipline. The means to keep a close watch on the contractor's costs are in place; they have to be used effectively. This administration has instituted a number of initiatives to get more discipline in our programs. There is much more that could be said, but it all boils down to one thing--hard work by good people.

There is no reason to predict that a single contractor situation is an automatic for cost overruns. We have the tools to control costs in any situation and we have instituted procedures for doing a much better job in the future than we have in the past.

We are currently exploring various means to reinstitute the competitive factor when the program gets to production. Ninety percent of this program's costs will be in the production phase and competition for production is much more likely to achieve significant savings for the government than in the development stage where 10% of the costs are the contractors are working on "cost plus" type contracts, anyway.

On the point of encouraging competition, we feel that we have. Preliminary design was extended at the request of one contractor and he still didn't bid. We have no guarantee that Sikorsky would have bid if the preliminary design phase had been 33 or 36 months, either. The other question is: how far should the government go in its efforts to "encourage competition"? Unbounded by some prudent checks, that could quickly lead to chaos. The government certainly

has an obligation to ensure that no one is unfairly restricted or inhibited from competing for a contract. But does this mean that the government has an obligation to ensure that, for every competition, there are at least two qualified bidders available? If there are two competitors, but one is weak, does the government have an obligation to help the weaker firm in order to even the odds? What form should that help take? Those are hard questions and the answers aren't readily available, but they do require some thought.

Affordable Alternatives

QUESTION: The most expensive piece of our strategic modernization program is the MX missile, over which Congress and the Administration find it difficult to agree. Is there any chance the President's Commission on Strategic Forces will come up with more affordable alternatives?

ANSWER: The Department of Defense is not authorized to speak for the Commission, so it would probably be without value for us to speculate on possible outcomes at this time. It is our understanding, however, that the Commission will report to the President in early April. We will know more about the affordability of the Commission's options at that time.

Senator Stevens: Is it realistic to expect Congress to deliver a supplemental appropriation for MX procurement with all these continuing uncertainties?

Answer: Yes, the supplemental request for Peacekeeper is part of our effort to protect the option of deploying Peacekeeper in 1986. Because of the increasing threat to our current ICBM assets, we believe it is critically important to protect the option for an FY 86 IOC for Peacekeeper deployments.

QUESTION: How serious is all this talk about a smaller, mobile missile? How would that kind of alternative affect your pending budget estimates for both 1983 and 1984?

ANSWER: Since we are not authorized to speak for the President's Commission, it is not appropriate for us to comment or speculate on what is or is not happening. Certainly, however, any change in the Peacekeeper Closely Spaced Basing program that is the basis for our FY 1983 and 1984 budgets would necessitate changes to those requests.

Missile Alternatives

QUESTION: What are the advantages and disadvantages of the small ICBM and the Trident II (D-5) SLBM compared to the MX? With strong program direction, could the Navy and Air Force efficiently manage a common missile program?

ANSWER: The primary advantage of a small ICBM over the Peacekeeper missile is the flexibility it offers in potential basing modes and in targeting. Its disadvantages relative to the Peacekeeper are its availability some three to four years after Peacekeeper and greatly reduced payload. The latter translates into reduced flexibility to accomodate higher yields and much higher life cycle costs in typical basing modes. Other advantages and disadvantages can be associated with these missiles in various

basing modes, but such factors do not discriminate between missiles alone.

There is no apparent advantage in using the Trident II D-5 missile on land in place of the Peacekeeper missile. The disadvantages are an availability that is later by nearly four years, much inferior range-payload combinations, and much less accuracy at ICBM ranges. If, instead, the question means to compare the D-5 in its SLBM role to a land-based Peacekeeper system, the answer changes as follows: The primary advantage would probably be superior survivability and endurance, but the fatal disadvantage would be the abandonment of the Triad concept with the attendant loss of its synergistic benefit. The resulting lower level of deterrence would not be acceptable in the long run.

With strong program direction, the Navy and Air Force could efficiently manage a common missile program, but this does not mean that the Department would advocate such a program.

Basis for R&D Budget Request

QUESTION: Last year's projection for FY 1984 MX R&D spending was $2.7 billion. This year's budget is nearly $3.4 billion, some $700 million more. What new MX R&D initiatives are you planning that require such a large increase over last year's projection?

ANSWER: Last year's projection for FY 1984 called for interim basing of Peacekeeper in existing silos and initiation of R&D efforts in three potential areas for long term basing. In sharp contrast, our FY 1984 budget request reflects President Reagan's November 1982 decision to base Peacekeeper permanently in the altogether new basing mode known as Closely Spaced Basing (CSB). The R&D requirements of CSB, with its silos needing a nuclear hardness never before attempted, are much greater than those for the interim basing in existing silos, yet the IOC remained the same. Thus, the bases for last year's projection and this year's budget request are qualitatively very different and cannot, therefore, be compared task by task in a productive manner.

QUESTION: Have you included funding to obtain R&D production hardware and support equipment to make MX R&D missiles operationally deployable by 1986, as permitted by conference language on the FY 1983 defense appropriation?

ANSWER: Our request includes R&D funds needed in FY 1984 to acquire the R&D flight test missiles needed to complete successfully the full scale engineering development phase. Those assets, therefore, may not be used for any other purpose, including operational deployment. Our request also includes the FY 1984 part of the requirement for procurement funds necessary for operational deployment of production missiles beginning in 1986.

Peacekeeper Procurement

QUESTION: Is it a fact that the current Ballistic Missile Office production profile for the MX requires no procurement funding in FY 1983, and that office has realigned its acquisition plan to coincide with the language of the conference report?

ANSWER: Because of Congressional denial of FY 1983 procurement funds requested for Peacekeeper, the procurement funding profile was adjusted accordingly.

FY 1983 Supplemental Request

QUESTION: Wouldn't this alleviate the need for MX procurement funds in an FY 1983 supplemental?

ANSWER: No, because our need for FY 1983 procurement funds did not change.

QUESTION: Mr. Secretary, this year's R&D budget is $29.6 billion, up $6.9 billion over 1983. This represents a real growth of nearly 24 percent. Do your out-year budget projections for the procurement accounts provide the budget authority to move all these major R&D programs into economical rates of productions?

ANSWER: The increase in the FY 84 RDT&E request is concentrated in the strategic force programs. Of the $6.9 billion increase, $3.3 billion is in strategic programs. Much of this $3.3 billion is accounted for by the MX/Peacekeeper, the small mobile ICBM, and the Trident II (D-5) programs. These strategic programs are all part of the President's Strategic Modernization Program and have been carefully factored into the out-year planning and programming. We expect no difficulty in financing production of these systems.

The other portion of the $6.9 billion increase is concentrated in the areas of intelligence and communications and in the advanced technology development area. Due to the nature of the programs receiving the increases we anticipate no production problems or particular financial difficulties as a result of the FY 84 RDT&E increase in these areas.

QUESTION: If the out-year budget assumptions are inaccurate, or if we have to restrain procurement, won't it also be necessary to defer R&D spending?

ANSWER: The relationship between present and near-term R&D spending to future procurement production is highly problematical. The impact would depend largely on what specific procurement programs are effected as well as whether the procurement reductions are made by stretch-outs or program cancellations. The extent to which on-the-shelf equipment might be modified in an effort to improve force capability in lieu of new systems would also be a factor.

QUESTION: Last year the DoD projection for R&D spending for FY 84 was $27.5 billion. This year's request is $2 billion more than that. Did the Department see the recent budget drill as an opportunity to boost R&D spending at the expense of procurement, pay and other accounts?

ANSWER: No. A portion of the FY 84 R&D increase of $2 billion over last year's planning level includes R&D funds that were requested but not appropriated in FY 83. In addition, the MX/Peacekeeper RDT&E request is $1 billion higher than what we planned

last year for FY 84. This was due to the uncertainties and indecision over the basing mode. Since the president's decision in April of this year, the FY 84 MX/Peacekeeper RDT&E request has been reduced.

QUESTION: Mr. Secretary, most of the spending increases proposed for research and development come in the following areas:

-- strategic programs (+$3.2 billion)
-- tactical programs (+$1.6 billion)
-- intelligence and communications (+$800 million)
-- classified programs

Why are these budget increases so much higher than those projected for FY 1984 last year?

ANSWER: Our data on the planned FY 84 RDT&E funding levels submitted with the FY 83 request vis-a-vis the actual FY 84 request shows the following differences by category in $B.

	FY 84 (Planned)	FY 84 (Request)	Difference
Strategic	7.31	9.16	+1.85
Tactical	8.10	8.85	+ .75
Intel & Comm	3.21	3.58	+ .37

These differences are substantially lower for the program categories in question. There is no separate breakdown in classified programs.

Again, about $1 billion of the 1.85 billion increase in the Strategic category was due to the MX/Peacekeeper basing uncertainty. This has now been resolved. The balance is mostly in classified programs and some of the strategic C3I improvements where it was determined that more funding was necessary. About half of the increase in tactical programs RDT&E was spread throughout Navy programs, about $100 million of this increase was in Army programs with the balance spread throughout Air Force programs.

QUESTION: The strategic programs R&D budget level of $9.2 billion is $1.4 billion more than you projected last year ($7.8 billion). Why?

ANSWER: Our data shows that the difference between the planned FY 84 strategic RDT&E funding level and the actual request is $1.85 billion. As stated previously $1 billion of this difference was due to uncertainties and indecision on the MX/Peacekeeper basing mode. This has now been resolved and the FY 84 request has been adjusted accordingly. The balance of the difference falls into the category of classified programs and strategic C3I improvements.

QUESTION: Dr. DeLauer, last year you said you were able to accommodate the $500 million cut Congress made to R&D in FY 82 without major damage to your programs. Congress cut $1.7 billion from the 1983 R&D budget request. What is your assessment of that reduction?

ANSWER: The $1.7 billion reduction in the FY 83 RDT&E request was roughly distributed as follows:

	Δ$ M
Army	-650
Navy	-280
Air Force	-650
Agencies	-100

Just under half of this entire reduction occurred in two programs -- the Army's BMD program and the Air Force MX/Peacekeeper ICBM. The ICBM matter has been resolved; the BMD reduction in no doubt slows our technology development program. As to the rest of this total RDT&E reduction in the FY 83 request, the impact obviously varies according to the program effected. I view the BMD reduction and the reductions in our High Energy Laser programs as serious. They can only slow the development of these technologies and delay the time by which we could conceivably field a usable system.

Much of the $1.7 billion cut was made by taking small cuts in many RDT&E programs in all categories. Although I cannot say that a critical program, mission, or technology was dealt a death blow, other than perhaps the two cited above, these reductions tend to delay the time that technology is transitioned into usable systems in the field.

QUESTION: Are you trying to recoup cuts made to the R&D accounts over the last two years in this FY 1984 budget? Isn't it more prudent to seek more moderate increases in view of the intense pressure to curb defense spending?

ANSWER: In some respects yes, in others no. Where we think we can keep an important program roughly on schedule by recouping losses we will attempt to do so. In some programs such as our High Energy Laser programs we have attempted to partially recoup losses from the FY 83 appropriation. We have given the Services and Defense Agencies such as DARPA specific objectives regarding real growth in the science and technology programs in an effort to regain some of the ground lost in our Tech Base during the 1965-78 period.

New Starts/Cancellations

QUESTION: How many new R&D starts are in the FY 1984 budget, compared to program cancellations?

ANSWER: There are nine (9) major new starts in the FY 1984 budget and there are 67 programs (and minor projects) that were cancelled during our summer 1982 budget review process.

Independent Research and Development

QUESTION: 4. How much money is in the FY 1984 budget for independent research and development, and how does that compare to the 1983 level?

ANSWER: 4. There is no money identified in the FY 1984 budget for independent research and development (IR&D). IR&D is an overhead cost incurred by contractors that is included in contract prices. Like other overhead costs, it is not specifically identified in the contract nor is it specifically identified in the budget.

QUESTION: 5. Will you be able to comply with the appropriations conference directive that an annex outlining IR&D costs ceilings, by service, be submitted to Congress no later than April 1, 1983?

ANSWER: 5. Yes. The report will be submitted on time.

Independent Research and Development

QUESTION: 1. The fsical year 1983 Defense Appropriations Act placed a ceiling of $2.1 billion on expenditures for Independent Research and Develpment and Bid and Proposal costs. What is the status of the negotiations with the various contractors to accommodate the ceiling provisions?

QUESTION: 2. You have expressed concern about the language in the Conference Report which directed these categories of funds be requested as dedicated line items in the fiscal year 1985 budget. What is the current status of the negotiations relative to this directive.

ANSWER: These questions are identical to those asked on Page 83.

Derivative Tactical Fighter

QUESTION: You won't have the results of the comparative flight tests of the F-15E and F-16E derivatives until July at the earliest. How can we responsibly recommend funding of this scope for a program that has not been clearly defined?

ANSWER: Although the winner of this comparative flight test will not be determined until later in the year, the funds requested will be required for whichever aircraft is chosen. The initial development programs do not vary that much for either aircraft and in order to field this derivative fighter in a timely fashion it is important that we follow up the comparative flight tests as quickly as possible with full development of the winner.

Deep Strike/Interdiction Weapons

QUESTION: Dr. DeLauer, there are a multitude of standoff weapons in the FY 84 program this year -- JTACMS, MRASM, the Tomahawk Land-Attack Missile -- how do you justify the development of this myriad of new standoff weaponry? Is technology creating new requirements, or do we have firm mission requirements which drive our overall planning in this area?

ANSWER: Technology is used to satisfy validated mission requirements or to remove known deficiencies. We do not create new requirements just because technology exists. Our mission requirements are firm and only change in response to policy or threat. We do not have a myriad

of standoff weapons. MRASM and Tomahawk missiles are variations of the same system each tailored for a different mission. Tomahawk Land Attack Missile (TLAM) is submarine and ship deck launched; it has both a nuclear and a conventional capability. MRASM is air launched and is to be used for attack of airfields and ships. MRASM is a joint system (Air Force-Navy) which indicates our efforts to reduce number of systems. JTACMS is also joint system (Army-Air Force); it will be air and ground launched and will have distinctly different warheads than either MRASM or TLAM-N/C for different (second echelon) targets. Since the range of the MRASM or TLAM-N/C is significantly longer than that of the JTACMS, the payload in the warhead of the MRASM or TLAM-N/C is about one-half of the JTACMS's. For the intended role of the JTACMS, payload is to be maximized.

Joint Tactical Missile System (JTACMS)

QUESTION: The Army is involved in a joint service development program with the Air Force called JTACMS (Joint Tactical Missile System). The Army portion of the program is to develop a corps support weapons system (CSWS) to destroy the enemy's second echelon reinforcement capability. How do the Army and Air Force plan on merging their service-unique requirements into a joint tactical missile system?

ANSWER: Service unique requirements will be merged according to how the requirements impact weapon cost. For requirements that can be met by relatively low cost solutions, the design will accommodate all needs in a single set of hardware. However, if the service peculiar requirement can only be met by a higher cost design, we will incorporate modular segments. For example, if a warhead is needed by one service but not the other, then the warhead will not become a permanent design fixture but it will be made to be replaceable.

QUESTION: How much money does this joint approach save us than had each service gone its own way and started separate CSWS and conventional standoff weapon programs?

ANSWER: Estimated savings will be at least $600 million.

QUESTION: Last year in our committee report, we commended you for restructuring the CSW/CSWS programs, but we also indicated that this program should "involve our NATO partners as a joint development/coproduction effort" since so much of the justification for this program is due to the threat in Central Europe.
What progress has been made in getting our allies on board in this program?

ANSWER: In Dec 1982 the Secretary of Defense presented a paper to the NATO Defense ministers which suggested initiatives for improving conventional defense. In a follow-on effort we are in the process of providing to

NATO a comprehensive document which identifies systems and emerging technologies for conventional defense. JTACMS is included in the package.

JSTARS

QUESTION: Another joint Army/Air Force program is JSTARS. We understand the requirement for the system, but we also understand that there is a lack of definition in the program. Have the airborne platforms been decided on yet?

ANSWER: The definition of JSTARS has been somewhat slower than originally anticipated. We expected to have been "on the street" with a Request for Proposal (RFP) to start full scale development during the first half of FY-83. Today, it looks like we are not going to make it until the second half of the year. We have agreed that the requirement of both Services can be satisfied by a single multi-mode radar and are preparing the RFP accordingly. The Army will use the OV-1D as its JSTARS platform and such radar will also fit into the TR-1 or other likely platforms that the Air Force may choose. Consequently, the platform selection is not critical to the start of the radar development, provided that we size the radar to fit the OV-1 and the TR-1.

SPACE PROGRAM COSTS

QUESTION: Dr. DeLauer, you note in your statement that despite technical successes, our space programs are encountering problems with higher than expected costs. How are you attempting to control the rising costs of DoD space-related programs?

ANSWER: My comment was directed to the Shuttle program, and relative to Shuttle, let me cite two examples which I feel are significant actions underway to reduce our costs. First, NASA's decision to compete the Shuttle processing contract for Kennedy was a critical and necessary step to achieve lower Shuttle costs. At Vandenberg, we had an opportunity to go a separate way - in fact, we were doing just that until Oct 1982 at which time we announced our intent to join with NASA to have a single processing contract also include Vandenberg. The DoD thus gets the benefit of a competition and the winning contractor has maximum flexibility to operate both launch sites.

The second example is our decision in the fall of 1982 to join with NASA in the Centaur development program. As you know, we pushed hard in early 1982 for approval to initatie a Higher Energy Upper Stage for payloads that would exceed the Inertial Upper Stage's capability. When Congress directed NASA to develop the Centaur in July 1982, it was evident to us that the Nation couldn't afford to simultaneously develp two additional upper stages. Consequently, we reviewed our upper stage plans and in Nov 1982

completed an agreement with NASA for a joint program that will obtain for us a high performance stage at less cost than we would otherwise have incurred.

Shuttle costs remain a concern to the DoD because we are wedded to a system that has many elements beyond our control. As an example, the renegotiated reimbursement agreement added over $2B to the DoD's budget through FY 88. While we continue to be vulnerable, we are working closely with NASA to apply our best collective efforts to achieve our common goal of a routinely operational, economical Shuttle.

QUESTION: Do you anticipate any sizeable cost growth in the MILSTAR program?

ANSWER: To the best of our knowledge, we do not expect any sizeable cost growth in the MILSTAR program. This statement is based on our design-to-cost philosophy which will permit us to incorporate as much communications capacity and survivability features as the current budget and weight limitations will permit. As future budgets permit, we plan to increase the communications capacity and survivability features of MILSTAR in accordance with the communications needs, the threat and available technology. Thus, we anticipate that the capability of MILSTAR will evolve with increasing capability over a period of years.

BUDGET FOR SPACE-RELATED ACTIVTIES

QUESTION: What percentage of this year's budget request is for space-related activities, and what initiatives are proposed? How does this compare to last year?

ANSWER: The proposed FY 84 Department of Defense budget request for Space and Space-Related activities is approximately $9.3 billion dollars. This figure represents roughly 3% of the FY 84 DoD budget request. The $9.3 billion dollar figure represents an increase, in Then-Year dollars, over our $8.5 billion FY 83 request for Space and Space-Related activities which was also approximately 3% of the FY 83 program.

Some highlights of the 1984 space initiatives includes:

- Continue GPS production satellite block buy
- Continue DSCS III production with purchase of 4 sets of Economic Order Quantity parts
- Complete purchase of 4 DSP satellites, started in FY 82
- Continue ASAT development program
- Continue MILSTAR development program
- Continue construction of CSOC

SPACE PROGRAMS

QUESTION: Critics continue to argue that space-based defense systems are underfunded. In view of the potential advantages, are we giving this requirement proper emphasis?

ANSWER: We believe at the present time that efforts on space-based defense systems are "technology limited" as opposed to "funds limited." Accordingly, we believe that we are providing the proper emphasis.

Shuttle Orbiter Fleet Size

QUESTION: Is the Department satisfied that all of our defense satellite payloads can be managed with just a four shuttle orbiter fleet? Will we need another shuttle orbiter?

ANSWER: From a DoD perspective alone, continued availability of a four orbiter fleet would be adequate to ensure that DoD missions would be supported. The NASA/DoD agreement on Shuttle specifies the DoD priority for critical national security missions. As such, our needs could be met by bumping lower priority civil/foreign payloads.

At this time, however, there is insufficient data to make a final decision on orbiter fleet size. Prudent management dictates that we maintain an orbiter production capability until such time that the system has matured and we can fully assess the factors that influence fleet size. Given that we are fully committing ourselves to the Shuttle as our primary access to space and plan to phase out Titan production, it is essential that we keep, for the near term, the orbiter production base.

We will derive an immediate corollary benefit from such a decision: the process of keeping the production base active will improve the Shuttle spares posture which continues to be a matter of some concern.

Titan III Booster Production

QUESTION: You are no longer budgeting for Titan III booster production. Is it wise to forego a back-up expendable launch vehicle production capability?

ANSWER: The Air Force has been maintaining the Titan III(34)D production capability for several years while we gained confidence that the Space Shuttle could satisfy DoD launch requirements. We have procured a sufficient quantity of Titan III(34)D boosters to meet both our prime and backup launch requirements.

The FY 1983 Space Boosters Program contains long lead funding for vehicles #17 and #18. However, we have established the successful completion of the sixth Space Shuttle flight (STS-6) as the necessary criterion for a decision on continuing Titan production. If STS-6 is successful, as we expect, we will not proceed with the procurement of the FY 1983 long lead materials but will begin production phaseout activities instead.

We will, however, continue to conduct Titan launches through FY 1985 at Cape Canaveral AFS and through FY 1986 at Vandenberg AFB. We have a sufficient number of Titan III(34)D vehicles available to meet our prime and backup launch needs until all our spacecraft transition to the Space Shuttle.

Further, by the time we reach 1985/86, we will have completed, or will be committed to, spacecraft design changes on most of our programs which will optimize those payloads for the Shuttle. This process will

also preclude their compatibility with the Titan.

Titan production may continue beyond the end of DoD procurements. A contractor consortium is considering producing and launching Titans as a commercial venture. Under this initiative, expendable launch vehicle production would continue.

DoD Leasing Policy

QUESTION: There is a growing trend in the Defense Department to utilize chartering or leasing as a means of acquiring ships and aircraft and other equipment. The extent of this practice is hard to define since it is not budgeted in a normal fashion. What policy has the Department installed to control this practice and to insure that leasing is a cost effective alternative?

ANSWER: It would not be accurate to say that there is a growing trend in the Defense Department to utilize chartering or leasing as a means of acquiring ships and aircraft, as well as other equipment. Goods and services needed by the Department of Defense to carry out its mission can be acquired by either purchase or by lease. Under either alternative, we can operate and maintain the items of equipment ourselves by utilizing government personnel or we can buy the services to do so. In addition to these two methods, we can acquire services from the private sector that involved the incidental use of real or personal property. The government neither buys or leases the property in these cases. Leasing has been used traditionally in the Department for real property, data processing, and other office equipment, and transportation. Policies are in being in the Department of Defense to ensure that only cost effective alternatives for acquiring property and services are being employed. For example, any contract for services that would involve the long term leases of such hardware as ships would require deviations from the Defense Acquisition Regulation required clauses. These deviations must be approved by the Deputy Under Secretary of Defense (Research and Engineering), Acquisition Management.

Advance Congressional Review of Leasing

QUESTION: Under present practices and broad authorities, the Appropriations Committee has no advance review over long term leasing proposals for ships and aircraft. What effort is the Department making to insure that the normal budget review is afforded to this practice?

ANSWER: The acquisition of goods or services involving long term leases require the notification of the House Armed Services and Appropriations Committees. In the recent case of the Navy's TAKX ships, the congressional review included a study by the House Appropriations Committee Surveys and Investigations staff.

Cost Analysis of Leasing

QUESTION: Recent congressional testimony indicates the Department's cost analyses of charter programs does not consider the potential loss of tax revenues from contractor depreciation of ships and aircraft. It has been suggested that lease options may be as expensive if not more expensive to the government than direct purchase. Has the Department fully analyzed this problem?

ANSWER: The recent congressional testimony presented by the Department of Defense included specific instances of how and where the potential loss of tax revenues from depreciation of ships and aircraft was considered or was planned to be considered in decisions on whether to purchase equipment, lease equipment, or acquire a service involving the use of equipment by firms in the commercial sector. The Department has analyzed the assertion that lease options may be as expensive, if not more expensive, to the government than direct purchase. Much depends on the specific circumstances surrounding a particular lease vs. purchase decision. Therefore, it is the Department's policy to consider these decisions on a case-by-case basis. While in some cases the cost of purchase is about the same as the cost of leasing, there are considerations in addition to the cost to the government, such as the urgency of the need. The Department has, and is continuing, to analyze this issue.

DoD/Treasury Department Interface on Leasing

QUESTION: Does the Department consult with the Treasury Department to determine the overall cost to the government of long-term leases of ships and aircraft?

ANSWER: It is our understanding that the Treasury Departmet does not involve itself in individual decisions made by other departments. Moreover, the Internal Revenue Service does not render advance opinions on tax questions involving known taxpayers. However, DoD has consulted with Treasury on matters of economic analysis pertaining to lease vs. buy decisions.

SAC

QUESTION: I understand that the introduction of the new TRIDENT II (D-5) missile on the ninth TRIDENT submarine will extend the construction period of that vessel by one year and add some two million labor hours to the construction estimate. Is this an accurate statement?

ANSWER: Yes. The Navy believes that introduction of the TRIDENT II (D-5) Strategic Weapons Systems (SWS) into the fleet will extend the new construction schedule of the ninth, tenth and eleventh SSBN 726 (TRIDENT) Class submarines by 12 months, 12 months, and 4 months, respectively, beyond the original estimates of the delivery dates of these hulls as TRIDENT I (D-4) (SWS) equipped submarines. The Navy also estimates that the TRIDENT II (D-5) SWS installation in the ninth hull will add 2.1 million man hours of labor to the construction schedule.

Questions Submitted by Senator Garn

Efficient Production Rates

QUESTION: Are you satisfied that our procurement programs are being funded at efficient rates of production? Do we still fall short of funding some of our major aircraft programs at efficient rates?

ANSWER: We have made significant progress on our initiative of efficient production rates; however, I am

convinced that more progress can be made, particularly, if the procurement accounts in our proposed budgets are fully funded. We have thoroughly examined our production rates the past 2 fiscal years and I fully expect economic production rates will be at issue again when we prepare the FY85 budget.

In the FY83 budget submittal we reported $2.3B in savings under economies and efficiencies. Eighteen programs were accelerated to higher rates. In this year's budget we were able to build upon last year and increase the projected cumulative savings to $2.6B.

There are many reasons apart from budgetary ones for having to lower previously programed rates. Among these reasons are technical or operational problems, changes in threat or our own tactics, the incorporation of changes in technology, and adjustments to accommodate initiation of competition, maintenence of an active or a warm production base, electing to proceed with a multiyear contract in lieu of an increased rate, and balancing the workload in a facility where a number of programs are being produced.

Multiyear Procurement Candidates

QUESTION:

Would you highlight for the Committee and provide for the record a list of those programs which will be funded under a multiyear procurement approach? What are the projected savings for these programs, as compared to an annual authorization/appropriation approach?

ANSWER:

New FY 1983 Candidates in the FY 1984 Budget

	Projected Savings (Compared to Annual)
AH-64 Engine	22.5
CH-47D Modification	47.8
M-60 Tank Thermal Sight (TTS)	87.6
Bradley Fighting Vehicle Systems Comp.	46.5
F/A-18 Engines	132.0
B-1B (includes airframe and major subsystems)	1,188.2
Subtotal	1,524.6

FY 1984 Candidates in the FY 1984 Budget

	Projected Savings (Compared to Annual)
LSD-41	246.4
MK-30 Target	7.5
SSQ-62 DICASS	16.1
TB-16 Towed Array	1.6
MK-45 Gun Mount/MK-46 Hoist	69.6
F-15	399.0
AN/TSQ-111 Communications Nodal Control Element	66.0
KC-135 Reengining	329.3
Subtotal	1,135.5
Grand Total	2,660.1

COMPETITION

QUESTION: Is the Department of Defense making effective use of second source procurement programs to increase competition in the production phase and promote cost savings? Please provide some examples.

ANSWER: The production phase has been the difficult phase to carry out competition and requires in-depth planning to set the stage for the introduction of competition. This is primarily being introduced by establishing a second source either at the prime or subcontractor/vendor level for the item. Examples of second sourcing at the prime level are the AIM-7M and Hellfire missile programs, and planning is underway on the F-15/F-16 Engine, AMRAAM, and IR Maverick programs. We have initiated second sourcing at the component level in a variety of programs. Some examples are the Bradley Fighting Vehicle track and firing systems, rocket motors and warhead components for missile programs, various ammunition and gun components, AIM-9M and cruise missile components, and aircraft and ship components.

CONTACT BY CONSTITUENT

QUESTION: I have been contacted by a constituent regarding a management initiative which he believes could provide for savings in the area of acquisition of modification programs within the Air Force. I will submit this material for the record and would appreciate it if your office would coordinate with the Air Force in assessing the merits of this proposal.

ANSWER: The management initiative addressed in the proposal would automate the processing of modification actions in the attempt to enhance obligations. The management procedures detailed in the proposal regarding obligations have long been Air Force policy and major improvements in funds obligation have been achieved. Automation of these procedures has been more difficult to implement due to the current state of automation capability within AFLC. A program to update AFLC's automation capability has been initiated and the modification program will be included in that program in the future. In the meantime we are working within available resources and automation capability to provide the best data reporting and tracking systems possible.

QUESTIONS SUBMITTED BY SENATOR MCCLURE

The Hart Amendment

Senator McClure: The Hart amendment to the FY 1983 Extended Continuing Resolution indefinitely prohibited MX ICBM flight-testing in order to comply with the unratified SALT II Treaty. Why did the Defense Department fail to oppose the Hart amendment?

Answer: Because of the rapid pace which characterized the introduction, discussion, and vote on the Hart Amendment, the Department of Defense did not have time to prepare a fully staffed position for Congressional consideration. However, we did oppose the Amendment and some brief talking points were prepared and used to brief some senators and staffers who requested information from the Department of Defense. Note that the Hart Amendment will not affect the IOC of Peacekeeper if a decision is made to allow flight tests by summer of 1983.

New Small Missile

QUESTION: How long would it take to develop a new small mobile ICBM?

ANSWER: Depending on how much new technology is involved and the requirements for an initial operational capability (IOC), it could be from seven to ten years.

SAC

QUESTION: Can TRIDENT II SLBM development be accelerated so that Initial Operational Capability can come before 1989? How much would this cost?

ANSWER: In mid 1982, in response to a Congressional request, Navy/Defense examined the feasibility of accelerating the IOC of the TRIDENT II (D-5) Strategic Weapons System (SWS). It was concluded that a two (2) year acceleration of the program was not feasible due to unacceptable added costs and the schedule/technical risk incurred. A one (1) year acceleration was found to be feasible, with some technical risk to meeting missile accuracy objectives. However, added costs remained a pivotal factor and the acceleration was judged to be not cost effective. Rather than accelerate the IOC of the TRIDENT II (D-5) SWS, the decision was made to adhere to the original (Dec 89) IOC but rephase the introduction of the missile into the fleet. Congress was informed of this decision on 1 June 1982 by Secretary Weinberger in letters to the Chairmen of the SASC, SAC, HASC and HAC.

Acceleration of the TRIDENT (D-5) SLBM is no longer possible since the decision "window" has passed.

BALLISTIC MISSILE DEFENSE R&D

QUESTION: Describe the status of U.S. ABM R&D. How long would it take to deploy LoADS?

ANSWER: The U.S. Ballistic Missile Defense R&D program develops technology for evolutionary system improvement, exploration of advanced defense concepts, and provides an option to defend U.S. ICBMs if needed. Nonnuclear kill technology is being demonstrated exoatmospherically now and a major effort has been started to develop endoatmospheric technology. Exoatmospheric optical tracking and discrimination has been demonstrated with sensors carried by probe vehicles; development of an airborne optical adjunct to move this capability into the atmosphere is underway. A Low Altitude Defense system (LoAD) now called SENTRY could have its initial units deployed using some existing components [deleted].

HIGH FRONTIER

QUESTION: Give a technical and cost assessment of Project High Frontier. How soon could it be IOC?

ANSWER: We have studied the Global Ballistic Missile Defense concept as postulated by High Frontier, and our cost estimates start at $60 billion and increase depending on assumptions and desired operational performance capabilities. While we have not made any formal assessments on the time to reach IOC, it can be noted that

under normal procurement practice the time to reach an IOC capability from the initiation of a formal requirement can range from eight to ten years depending upon the maturity of the technologies, total costs, and priority of the efforts involved.

New Type Soviet ICBM Tests Permitted Under SALT II

QUESTION: Mr. Secretary, give your interpretation of how many new type ICBMs the Soviets can flight test under Article IV of the SALT II Treaty.

ANSWER: Under Paragraph 9 of Article IV the Soviet's cannot flight test or deploy "new types" of ICBMs with the exception of one new type, which must be a "light" ICBM. This exception would permit either a MIRVed or non-MIRVed ICBM. A new type is defined as one which is different from all ICBMs flight tested as of 1 May 1979 with respect to the number of stages of the missile; or the type of propellent (liquid or solid) of any of its stages; or a difference of more than five percent (plus or minus) in the length, the largest diameter, the launch-weight, or the throw-weight of the missile. Likewise, the one new-type light ICBM must have the same number of stages and the same type of propellent of each stage as the first ICBM of that type launched. The baseline values of the length, the diameter, the launch-weight and the throw-weight would be established as of the 25th launch or the final launch before deployment, whichever occurs earlier. The values of these parameters may not differ in subsequent tests by more than five percent from the baseline values. The five percent limit on reductions in launch-weight and throw-weight may be exceeded for the purpose of reducing the number of reentry vehicles or penetration aids, and, additionally, propellent. Also, the values of length, diameter, launch-weight and throw-weight may not differ by more than ten percent during the last 12 launches before the 25th launch or the final launch before deployment, whichever occurs earlier. This was intended to inhibit actually testing more than one new type of ICBM under the guise of a test program for a single new type. If the Soviets launch an ICBM of the one permitted new type, the Treaty also requires that they promptly notify the US regarding the date of the first launch and the date of either the 25th launch or the last launch before deployment.

SOVIET PLANS TO REFIRE ICBMS

QUESTION: Do Soviet mobile SS-16 ICBMs have an operational capability at the Plesetsk test range?

ANSWER: The answer is classified Top Secret Code Word and is on file at [deleted] the Pentagon, [deleted]. The question cannot be be meaningfully answered at the Secret or Unclassified level.

SOVIET LASERS

QUESTION: Have the Soviets recently attacked a U.S. satellite with lasers, as reported in the press?

ANSWER: We are not aware of any Soviet laser attacks on U.S. satellites.

Underground Nuclear Test Yields

QUESTION: What underground nuclear weapons test yields are required to test the MX, ALCM, GLCM, SLCM, Pershing II, Trident I and II warheads?

ANSWER: Although the maximum yields for the warheads identified in your question are given below, many useful tests can and are performed at yields much less than full yield.

Weapon System	Warhead	Yield (Kt)
Peacekeeper	W87	(deleted)
ALCM	W80-1	(deleted)
GLCM	W84	(deleted)
SLCM	W80-0	(deleted)
Pershing II	W85	(deleted)
Trident I	W76	(deleted)
Trident II	WX	(deleted)

Although the Threshold Test Ban Treaty (TTBT) nas not been ratified, the U.S. continues to observe the 150 Kt limit for underground nuclear testing. Today our stockpile includes modern tested designs [deleted] and a [deleted]. In addition, prior to observance of the TTBT since 31 March 1976, the US tested at full yield [deleted]. Of the warheads identified, [deleted]. The [deleted] will also use a derivative of a tested design and [deleted]. Therefore, [deleted].

SOVIET SPACE-BASED LASER

QUESTION: When will the Soviets deploy a space based laser weapon?

ANSWER: [Deleted.]

CSB Does Not Violate SALT II

QUESTION: Mr. Secretary, explain in detail how MX Densepack deployment does not violate SALT II.

ANSWER: First, the Closely Spaced Basing (MX Densepack) system does not involve fixed launchers as set forth in SALT. The launcher for the Peacekeeper missile in the CSB system would be a canister specifically designed to be capable of being transported from one vertical shelter to another. The vertical shelter, although fixed, is not a launcher; the transportable canister itself contains all the equipment needed to launch the missile. As in the case of the MPS system for the MX, such a transportable launch canister was not considered to be a fixed launcher for SALT purposes. We believe CSB clearly does not undercut the SALT agreements in any respect: the CSB system is readily verifiable, it is a limited deployment which will not impede carrying out substantial reductions in strategic arms, and it fits well within the existing and proposed arms control structure. It need not produce an increase in the number of ICBMs, ICBM fixed launchers, or ICBM warheads. This deployment can be accommodated under the reduced ceilings we have proposed in START. It is in no way contradictory to the object and purpose of the SALT Agreements, or with the purpose of the specific provisions of those agreements concerning fixed launchers.

SAC

QUESTION: How much would it cost to convert POLARIS submarines to carry SLCMs? What could IOC be?

ANSWER: In 1980, Navy studied the conversion of the SSBN 598/608 classes of POLARIS submarines to carry the TOMAHAWK Sea-Launched Cruise Missile (SLCM). The cost to convert eight ships of these two classes to carry sixty four (64) SLCMs each (four per converted missile tube) would have been $2.6 Billion in FY 81 dollars, or $325M per hull. The total program cost estimate included non-refunding overhauls for each ship. At the time this option was studied, it was estimated the IOC could occur within three (3) years from the date a decision was made to proceed with a POLARIS to SLCM conversion program. An important consideration in this matter is the service life of the SSBN 598/608 classes of ships, which is expected to be thirty (30) years. All of these ships will reach this milestone in the 1990-92 timeframe, resulting in a relatively short period of time for remaining useful service had a decision been made to convert them to SLCM platforms.

There has been no recent effort made to examine the feasibility of converting hulls of later POLARIS Classes (SSBN 616/627/640) to carry SLBMs.

QUESTION: Why has the Air Force not deployed 50 or 100 Minutemen III ICBMs which were authorized in FY 1981 and FY 1982?

ANSWER: The FY 1981 Supplemental Request did result in authorization to procure additional Minuteman III ICBMs; but no funds were authorized, so no action took place. Congress did appropriate $5 million in FY 1982 and cited the FY 1981 authorization. Work was initiated in FY 1982, and the necessary silo grading was completed.

This two year deployment effort was terminated when Congress did not provide authorization or appropriations in FY 1983.

ALCM-B/ACM PRODUCTION

QUESTION: Will there be a time gap between the zeroing of ALCM-B production in FY 1984 and the beginning of production and IOC of the advanced ALCM? Why are we accepting such a gap during the window of vulnerability/

ANSWER: We do not anticipate any time gap between the zeroing of ALCM-B production and the beginning of production and IOC of the advanced ALCM. Some ALCM-Bs could be produced in FY84 depending upon cost, schedule, or risk associated with an advanced ALCM. This is currently being evaluated but would only occur if required to preserve a smooth transition from one system to the other.

ASAT PROGRAM

QUESTION: The Air Force ASAT Program, which is an F-15 rocket launched miniature homing vehicle anti-satellite system, has some technical problem. The GAO has recommended that potential

alternatives to this system be considered as the cost of the ASAT program could escalate from the planned $3.6 billion to "tens of billions of dollars." What are your thoughts concerning this system and the GAO recommendation?

ANSWER: We do not agree with the GAO on their technical assessment of the ASAT Program, nor do we concur with their cost escalation to "tens of billions of dollars." We are in the process of formally responding to their report.

QUESTION: Do you continue to believe this (MV) is the quickest route to an anti-satellite capability?

ANSWER: Given the present maturity of the different technologies and the fact that the MV has been under development for some time, we believe that the MV will give us the quickest IOC capability.

HARRIER TRAINER

QUESTION: I understand a delay in initiating the program start for the TAV-8B HARRIER trainer is under consideration. I am certain you recall that a delay in trainer availability for the AV-8A program precipitated an alarming accident rate. Has this been taken into consideration? Funds were included in the fiscal year 1983 appropriations to initiate this program.

ANSWER: Although funds were included in committee, they did not survive final FY-83 Appropriation. USMC feels that the trainer is of such priority that in order to achieve a 1986 IOC, a 1983 start must be made in program. In order to concur with conferees directive that supports trainer within current funding levels, USMC will attempt to reprogram some funding associated with spares to the RDT&E account for the training program. Although undesirable, the relative priority of the trainer requirement to the requirement for 100% spares at IOC leave no other option.

MRASM

QUESTION: Where do we stand on development of the medium range air-to-surface missile (MRASM)? Does this missile continue to be a candidate for the standoff weapon mission?

ANSWER: We have expended approximately $175M to date toward completing FSD on this joint cruise missile program. Current funding develops an Air Force version with first flight scheduled in 1985 and continues common Navy-Air Force subsystems. Insufficient funds are programmed to finish R&D on a Navy antiship attack version or to complete testing and launch platform integration on the Air Force version. MRASM is the near term candidate for the standoff weapon mission.

QUESTIONS SUBMITTED BY SENATOR ANDREWS

Pershing II

QUESTION: The first two test flights of Pershing II were unsuccessful. The third and fourth development tests have been conducted without apparent problems. What specific test objectives were met on these flights that weren't on the others?

ANSWER: The Army is classing the first two flights as one failure (July 22, 1982) followed by a partial success (November 19, 1982). On the November 19, 1982 flight, out of eight primary test objectives, successful demonstration of five was achieved; namely, propulsion performance, staging and separation, altimeter performance, inertial system performance and structural evaluation. However, due to failures of the reaction control system and the hydraulics system, the following three, all of which pertain to the terminal phase, were not achieved: terminal maneuvers, control system margins and radar area correlator performance. Since these first two flights, four consecutive successful missions have been conducted. All objectives which were not achieved on Missions 1 and 2 have since been successfully demonstrated one or more times.

MX

QUESTION: What caused the two explosions of the second stage of the MX missile during testing last November? What precautions have been taken to prevent such disasters in the future?

ANSWER: On November 17, 1982, there was an explosion of an MX Stage II motor during a test at the Arnold Engineering Development Center. Part of the motor propellant remained in the test cell after the explosion, and subsequently there was a fire in the residual propellant on November 29 as workmen were attempting to cut out the propellant and haul it away.

The probable cause of the explosion is extensive cracking of the propellant grain or a gross debonding of the propellant from the motor case. The evidence for this is that the explosion was so rapid and complete.

As a corrective action, the Air Force has since modified the propellant grain to reduce the chances of any cracking. (A debonding problem would require different quality control in manufacture and possibly some redesign.) Subsequently, a motor with the improved propellant grain was successfully tested in February 1983.

ALCM-B CONTRACT CANCELLATION

QUESTION: What are some of the advances the Soviets have made in anti-ALCM weapons that prompted the AF decision to cancel the present ALCM project in favor of one encompassing more stealth technology? What is the project termination cost?

ANSWER: Soviet defensive systems, primarily surface-to-air missiles (SAMs) and look-down shoot down fighters armed with air-to-air missiles are projected to improve significantly in capability and numbers in in coming years. Although we consider the ALCM-B to be a good, capable missile, the ACM development program will take advantage of state-of-the art technologies which will significantly enhance

the operational effectiveness of our airbreathing deterrent in the 1990s.

The Air Force will incur no termination costs in curtailing the production of the current ALCM at 1499 missiles.

ALCM INVENTORY OBJECTIVE

QUESTION: More than 1,000 Air Launched Cruise Missiles were expected by 1990. May I assume that in this open hearing you are unable to tell us the number of new models you plan to produce and when that might be?

ANSWER: The new cruise missile (Advanced Cruise Missile) is in source selection at this time. The delivery schedule and numbers of ALCMs are classified special access required. Although exact inventory objectives are now being formulated, the total number of cruise missiles is unchanged.

ALCM-B CONTRACT CANCELLATION

QUESTION: The ALCM contract was awarded just three years ago. Isn't this contract cancellation another example of the dangers involved in the "Technology Chase" where present technology is discarded for promises just beyoud the horizon?

ANSWER: Although we consider the ALCM-B to be a good capable missile, we feel that we can provide an even better state-of-the-art product at reasonable cost and low risk. Advanced cruise missile development will take advantage of currently available technologies which will significantly enhance the operational effectiveness of our airbreathing strategic forces.

Command, Control & Communications

QUESTION: What have we learned from the British C^3 experiences in the Falklands and from the Israeli C^3 problems in Lebanon last summer?

ANSWER: The Department of Defense initiated a study of lessons learned from the South Atlantic Conflict (SAC) under the direction of Lt General P. D. Shutler (USMC, Ret.) which included as an objective a review of the equipment, methods, procedures and effectiveness of tactical and strategic C^3I. The preliminary observation and findings were provided to OSD on January 21, 1983, and are currently being evaluated.

In response to the Lebanon conflict, we are not currently aware of any unique problems encountered by the Israelis in the command and control of their operations, but we have been provided data on specific items of Israeli produced equipment which was successfully employed. This data is also being evaluated.

Alternative to MX

QUESTION: There is evidence the Soviets are working toward basing a larger proportion of their ICBM force on mobile launchers. If there is a loss of the MX, do you foresee building small, mobile, concealable, single warheaded ICBM's?

ANSWER: Because we are in the midst of preparing a detailed report for Congress on the land-based ICBM alternatives, it would be inappropriate to speculate on the outcome. It is clear, however, that the Congressional guidelines require that the current review examine alternatives to the Peacekeeper missile as well as alternative basing modes.

CRUISE MISSILE VERIFICATION

QUESTION: It is reported that with all the cruise missiles you plan to deploy over the next decade, the nuclear tipped models are indistinguishable from the conventional version. Some arms control people feel that with thousands of both kinds deployed on land, sea and air that accounting for all of them will be a verification nightmare. What plans are there to keep track of both nuclear and conventional warheads on there missiles?

ANSWER: We are studying the issue of what verification measures are required to recognize and confirm the type of payload on the deployed missiles.

SOVIET PRODUCTION FOR ARMS EXPORT

QUESTION: Your own figures on the Soviet buildup indicate that the about 50 percent of all Soviet combat aircraft produced in the last nine years has gone overseas, as well as 35 percent of artillery and rocket launcher production for the same period. With this amount of their defense production devoted to the arms export market, can the actual Soviet threat be misinterpreted?

ANSWER: No, statements on the Soviet threat are not based on total defense production but on Soviet production less exports. The large scale Soviet production program for export is important as a major Soviet diplomatic tool and as a source of foreign exchange for the USSR.

SOVIET ABILITY TO FUND DEFENSE PROGRAMS

QUESTION: With their much lower Gross National Product, how do the Soviets affort to spend so much more on military weapons?

ANSWER: The Soviet system enables the leadership to pay its conscripts minimal wages, thus freeing huge sums for military hardware and R&D. Currently, procurement and R&D represent 60 percent of total ruble defense outlays were as in the US this amounts to about 37 percent of total dollar outlays. Procurement and R&D therefore represent a larger part of the high Soviet defense burden, now at about 14-16 percent of GNP. This heavy commitment to defense has been made largely at the expense of social programs to improve living standards and their civilian industrial base.

Peacekeeper in Minuteman Silos

QUESTION: You are requesting $2.9 billion for 27 MX missiles. There have been at least 30 different proposals suggested

for its basing system. Is the President's Panel on the MX still considering putting up to 50 of the missiles in existing Minuteman silos for the near-term?

ANSWER: We are not authorized to speak for the President's Commission, but the Department has been reviewing such an option as part of the preparation effort going into the detailed report to Congress on land-based ICBMs.

Questions Submitted by Senator Kasten

JVX Program

QUESTION: Information provided last year indicates that the JVX will cost $45B. Has the Marine Corps conducted an analysis of the JVX cost, versus the cost of alternatives? If so, what are the costs and capabilities of the JVX for Marine Corps requirements?

ANSWER: The cost you cited was in escalated dollars and refers to the total program costs estimated for JVX air vehicle and Modern Technology Engine development and procurement for 1,086 aircraft. Since last year's estimate by the Army, the DoD escalation factors have changed; we're still looking at a $22B program in constant FY 83 dollars which now translates to $41B in escalated dollars.

The Marine Corps has conducted an in-house analysis of JVX cost versus alternatives. In addition, the Navy and Marine Corps have requested the Center for Naval Analyses to conduct a formal cost and operational effectiveness analysis of JVX for both Navy and Marine Corps missions. This CNA-Marine Corps Operations Analysis Group study is due early next year. The Marine Corps is not making its case for JVX on projected cost savings alone. It's need for self-deployable, fast assault transports is overriding. A comparison of the costs of equal lift capability between JVX and an alternative off-the-shelf assault helicopter mix indicates that JVX should result in a $2B less costly program, with development costs included. These JVX costs total $9.7B in constant FY 83 dollars for the 552 operating, pipeline, and attrition aircraft required for a 20-year life Marine Corps program. They do not include estimated ship and manpower effectiveness, which heavily favor this new development. JVX would require five less LHD class 40,000 ton amphibious ships for the conduct of a Marine Amphibious Force assault and would require over 4,000 fewer Marines to operate and maintain than a larger inventory of significantly less efficient off-the-shelf helicopters. Over the past 13 years, various alternatives were studied, but the example used is a notional mix of CH-60E/CH-53E which has been frequently used for comparative purposes.

JVX capabilities will be impressive, especially when compared to existing NATO and Warsaw Pact assault helicopters. It is being designed specifically for rapid self-deployment worldwide, able to fly the over 2,100 nautical mile route from California to Hawaii without need for aerial refueling. JVX will be able to self-deploy from North Carolina to Norway for rapid responsiveness to NATO's Northern Flank in 14 flight hours. Alternatively, JVX could self-deploy from the East Coast to Oman or amphibious ships off its coast in approximately 26 flight hours or 2 1/2 days assuming crew rest enroute. Marrying up with Maritime Prepositioned Shipping and either deployed or airlifted troops, JVX will provide a truly rapid

and formidable strategic cruise at 250 knots over 200 nautical miles with a 24 combat-loaded troops, permitting rapid reinforcement to forward assembly areas, evacuations or withdrawals to sites out of range of threat surface-to-surface rockets. Perhaps most importantly, it will enable the battlefield commander to maneuver against the enemy by using JVX's speed and range to circumnavigate unfavorable terrain, adverse weather such as snowstorms or sandstorms, and dense threat build-ups. This quantum increase in air mobility will result in extreme complications for the enemy commander's positioning of air defenses and his mobile mechanized reserves by bringing a powerful high speed punch to his rear areas via raids, special operations, or enveloping assaults.

JVX, like the Harrier, will utilize worldwide self-deployability, lessening the demand for strategic air and sea lift assets, enabling rapid movement to far-flung contingency areas. Arriving at the contingency area, JVX can operate off of amphibious shipping or from expeditionary air fields for extended periods. JVX is being designed for low visibility night assault operations with the capability to conduct unrestricted flight in moderate icing conditions.

Questions Submitted by Senator Stennis

Procurement Practices

QUESTION: A number of authorities believe that in recent years there has been a lack of clear purpose and central guidance from DoD as to what are the proper objectives to be pursuing. They cite the increased independence of the Services which has led to a rapid increase in programs coming into procurement and evidence of duplication of effort. Would you comment on these allegations?

ANSWER: The Acquisition Improvement Program (AIP) is now nearly 2 years old and is designed to restructure the acquisition process to bring about changes in several important management areas (e.g., multiyear procurement, program stability, economic production rates, realistic budgeting, support/readiness, and competition). This management effort has been clearly implemented in the appropriate DoD directives and instructions.

We are currently going through a review which will identify a small number of AIP initiatives for increased concentration by the new Deputy Secretary of Defense.

Independent Research and Development

QUESTION: 1. The fiscal year 1983 Defense Appropriations Act placed a ceiling of $2.1 billion on expenditures for Independent Research and Development (IR&D) and Bid and Proposal (B&P) costs. What is the status of the negotiations with the various contractors to accommodate the ceiling provisions?

ANSWER: 1. The ceiling of $2.1 billion is being applied against contractor fiscal year 1983 advance agreements for Independent Research and Development and Bid and Proposal Costs. Maximum ceiling limitations have been established for the Tri-Service Negotiation Organizations that should result in allocations to DoD contracts of less than $2.1 billion. Prior to the passage

of the Continuing Resolution, approximately one-half of the 1983 advance agreements had been negotiated. The remainder are now in process.

QUESTION: 2. You have expressed concern about the language in the Conference Report which directed these categories of funds be requested as dedicated line items in the fiscal year 1985 budget. What is the current status of this matter? And what is your position on making IR&D a line item?

ANSWER: 2. The House Appropriations Committee has scheduled hearings on line item control for March 22, 1983. The Department is confident that it can demonstrate once again that line item budgeting for IR&D and B&P is counterproductive.

DIVAD

QUESTION: Army Chief of Staff General Meyer characterized the Division Air Defense Gun (DIVAD) as being marginal in terms of affordability. This system is just now coming into the inventory. With the STINGER in inventory and the STINGER POST well on its way--is it really necessary to have the DIVAD system also?

ANSWER: Air Defense studies have all shown that the most cost effective force structure for forward area air defense includes both STINGER and the Sgt York gun system. The STINGER missile system alone, even the POST version, cannot perform the total mission required for forward area defense. The STINGER alone cannot adequately handle the forward area helicopter threat because of inadequate reaction time, and lack of target acquisition sensors. Sgt York adds:

(1) Survivability in the foremost part of the Division-where a vehicular mount with armor protection is required.

(2) Mobility to provide air defense directly at the location of an armored maneuver forces.

JVX Program

QUESTION: The lead Service responsibility for the Joint Services Advanced Vertical Lift Aircraft (JVX) was recently shifted from the Army to the Navy. Why was this transfer made?

ANSWER: A year and a half ago, the Navy requested that they be designated the Executive Service for the JVX program. The Navy had management cadre in place and prepared a Program Plan for JVX in the fall of 1981 to execute the program in anticipation of getting the lead Service assignment. However, the Army, because of their previous work in advanced rotorcraft systems, also wanted to be designated lead Service very badly. The Deputy Secretary of Defense acceded to the Army and assigned them the lead in December 1981. At that time, the Navy made their team and previous work available to the Army and continued to participate as a partner, but under the Army's direction. In the summer and fall of 1982, the Army re-evaluated its position on the program and requested a revision in the cost-sharing agreement. The Navy agreed to take a full 50% cost share of the program on the basis that the Navy assume the role of Executive Service and the Army agreed. It is difficult

to try to assess the Army's motivations in this, but I have never detected any reluctance on the part of the Army which had anything to do with the technical validity of the proposed effort. The Army, along with NASA, brought this technology up to the point of maturity so that it could go forward into a military appplication; and the Army's technical community has done a superb job over the past year in getting the next phase of the program ready to go. They will, of course, be continuing to participate in all the remaining phases of the program. There is a great deal of solid expertise in the Army's technical community and maximum use will be made of it for the good of the program.

JVX Program

QUESTION: I understand Sikorsky will not compete for this contract. Does this mean that DoD will then pursue essentially a sole source program leading to the tilt rotor aircraft?

ANSWER: Your understanding concerning Sikorsky's decision not to submit a proposal for the JVX Preliminary Design Phase Contract is correct. We are still in the proposal evaluation period and are not permitted to disclose the number of bidders or identify them during this period. The question assumes that there is only one qualified bidder remaining; while I cannot verify that, I can comment on that possibility.

First, the use of the term "sole source" to describe the case is not correct. That would imply that the government inhibiited competition or elected not to compete the program. That is not the case. A Request for Proposal was released to industry which openly solicited bids from any firm, foreign or domestic, which felt qualified to bid for the program. In the six months prior to the RFP release, we also held several briefings on the program which were open to anyone interested.

I am sorry that Sikorsky decided that it could not be competitive on this effort. There is no doubt that it would have been beneficial for the government to have had them in the program for obvious reasons. But, that is no reason to project dire consequences for the remainder of the program. We have to remember that no one had any advance warning that Sikorsky would not bid; therefore, the proposals that were submitted were prepared in the spirit of competition at least.

Secondly, almost all programs narrow down to a single source, or contractor, at some point. We had planned to select a single contractor to conduct the Full Systems Development phase commencing in FY 85. The primary result of only having one qualified bidder for our Preliminary Design Phase, if that is the case, is that we are narrowing down about 24 months earlier than planned. This is not an untenable situation.

Third, although the projected cost of the R&D phase is substantial, the really big dollars are in production; that is true for virtually all programs. At this time, we are exploring avenues to create a competitive climate during production where the potential for savings due to competition is much greater than in R&D.

Although it is too early to speak to our exact strategy, I can give assurances that the government is not going to let this project be run as a huge, uncontrolled sole source program.

JVX Program

QUESTION: What length preliminary design plane are we speaking of? When a competition was envisioned, it could have been from 24 months to 36 months. Will the decision by Sikorsky now dictate a shorter program?

ANSWER: The Preliminary Design phase was originally planned to be 12-15 months long, but last summer Sikorsky requested that it be extended to 24 months. We acquiesced but felt that 23 months was the longest period of time that we could afford to spend on preliminaries. The plan to conduct Preliminary Design over 23 months before entering Full Scale Development was put into the approval cycle last fall and was approved by the Deputy Secretary of Defense in December. The Navy RFP was based on that approved strategy.

How long a Development or a Design period should be is not just a matter of counting calendar months. How fast a job can be executed also depends on how many people, engineers, and technicians can be put on the job, and the company's assessment of how long it will take that group to complete all their tasks. Although some of the work must be done sequentially, much can be done in parallel if enough people are available.

We have no plans to reduce the scheduled period for the Preliminary Design Phase at this time. Once we get into it, however, if we find that the work is going exceptionally well and milestones are being met ahead of schedule, we have the option to shorten things up if it appears that we can be ready in all respects for the Milestone II decision point earlier than planned.

QUESTION: Just how big a leap in technology is it going to be to grow the present X-15 at about 13,000 pounds to the planned 40,000 pound aircraft?

ANSWER: It is more of an engineering challenge than a technology problem. The big leap in the technology occurred in the actual flying of the XV-15 Tilt Rotor Prototype. Not many know that the XV-15 was originally scaled to be a 30,000 pound aircraft, but its size was reduced to save money in that phase of development.

There's no absolute way of predicitng problems that are related to scaling to any size factor. Most knowledgeable people say that beyond a scaling factor of three, there is increased risk but that there is no way to predict where the problems will occur. Conversely, we all know of projects that ran into severe technical problems when the scale factor was less than two. A great deal depends on how smart your designers and engineers are and how well they verify their designs before going ahead with the actual building of the aircraft. That is what our Preliminary Design Phase is all about. That phase consists of 23 months of intensive modeling, computer simulations, and wind tunnel testing of the scaled-up design before we make a decision to go ahead with the actual development of the aircraft. The techniques of proving designs through these kinds of simulations have advanced a great deal in the last ten years. Our ability to predict performance and problems through simulations means that we will be forced to do much less trial and error work with the real article when it is much more expensive to make a design change. In tilt rotors, we feel comfortable of our capabilities based on our experience with the XV-15. The NASA/Army team which managed the project conducted extensive modeling and simulations on the XV-15 and found some problems in

the design long before it flew. Design changes were made to correct these predicted problems and, when the XV-15 flew, it verified the computer predictions almost precisely, of course, without the problems. This success with the XV-15 program has proven that our tilt rotor performance prediction models are good and provides us with a measure of confidence that the scaling up of the tilt rotor to meet JVX requirements will present no insurmountable challenges.

That is all part of the R&D business. We do development work because we know there is no risk. The key to a successful development program is to identify and correct the problems early on and to catch the mistakes and get the fixes done before they have cost a lot of time and money.

ADEWS/COMFY CHALLENGE

QUESTION: A winner was recently selected in the competition for the Army Air Defense Electronic Warfare System (ADEWS). This system is to use off-the-shelf technology, be track mounted, and accompany short-range air defense weapons to detect and jam incoming aircraft. How does this system differ from the Air Force program "COMFY CHALLENGE" which is a ground-based jamming and deception system?

ANSWER: Objectives

- ADEWS
  - -- Provide [deleted] associated with the DIVAD (Divisional Air Defense) gun and other SHORAD assets.
  - -- Cause enemy aircraft [deleted] so they are easier to shoot down by [deleted].
- COMFY CHALLENGE
  - -- Confuse/deny enemy's target acquisition.
  - -- Peacetime capability for training and testing our own forces to operate in a degraded C3 environment.
- Both systems accomplish their wartime tasks by jamming target acquisition, navigation, and C3 systems in enemy penetrating aircraft.
- Points of difference between COMFY CHALLENGE and ADEWS are:
  - -- ADEWS is primarily for [deleted].
    COMFY CHALLENGE is an area defense system which provides a defense in-depth for specific high-value targets.
  - -- ADEWS planned for single vehicle; COMFY CHALLENGE looking at a distributed architecture of autonomous or semi-autonomous assets.
  - -- ADEWS [deleted].
    COMFY CHALLENGE targets both radars and communications.
  - -- COMFY CHALLENGE provides a peacetime capability for training and testing.
  - -- ADEWS will be installed in a tracked vehicle for maximum mobility. COMFY CHALLENGE does not have a similar requirement.

- Points of commonality are:
  - -- Both are at the same point in development but ADEWS has just made a contract award. COMFY CHALLENGE looking to a contract award in July 1983.
  - -- Production contracts will insure commonality where possible by using GFE equipment in both programs.
  - -- AF/ESD and Army EW Lab have prepared an MOA to integrate their efforts as much as possible.

QUESTION: There have been a number of proposals which would restrict real growth in fiscal year 1984 for defense to about 5%. What would this do to your planned modernization efforts?

ANSWER: Restricting the real growth of the FY 84 defense budget to 5% above the FY 83 level will, by our calculations, require an $11.6 billion reduction from the President's request. This reduction would be spread over all budget categories including procurement and RDT&E.

Obviously this is going to impact the modernization program. The specific impacts, i.e., particular programs and systems, cannot be determined at this time; however, the result will be a delay in improved force capability during the FY 84-88 period. Much of this will depend on how the Congress (the authorizing and appropriations committees) choose to make the required cuts. In any case, it must be recognized that reductions of this magnitude in our planned program cannot be incurred without reductions in specific capabilities and military mission areas. Our request for FY 83 was reduced by about $18 billion, so these reductions are cumulative and this is what causes the degredation in planned capabilities.

One of our major efforts in OUSDRE is to improve the acquisition progress, to procure weapons at more efficient and economic rates. Slow-downs and stretchouts are a major enemy of efficient acquisition. Consequently, outright cancellation of programs must be considered before actions to slow-down or stretch-out many programs which could result in increased future costs.

Pershing II

QUESTION: Tell me about the recent test of the Pershing II Missile. I understand after the initial two failures that we had a number of successes. Do you believe that the planned Introduction to Operational Capability (IOC) date is still achievable?

ANSWER: As you noted, after the initial two test flights, we have had a number of success. In fact, four consecutive successes. On the two most recent flights, February 26, 1983 and March 14, 1983, all primary test objectives were achieved. These were short range missions at White Sands Missile Range against typical operational targets. Missile hardware and software worked perfectly. In particular, these were the first flights in which we had the opportunity to evaluate the radar area correlator (RAC) against real land targets. The RAC correlates actual terrain features against a stored digital image of the target. In both cases, RAC performance was such that the accuracy achieved was within the operational requirement for circular error probable (CEP).

Regarding the Initial Operational Capability (IOC), we have no reason to believe that it is in jeopardy. There have been no test results to date which would cause us to doubt that the Pershing II missile, now in production, will meet its operational requirements.

Lebanon Crisis

QUESTION: The Israelis were quite successful in defeating Soviet armaments in the Lebanon crisis. Yet, apparently we will not be afforded an opportunity to participate in the

technological advances which have resulted in Israeli modifications to primarily American-built weapon systems. Isn't it possible that these technological breakthroughs would be most beneficial to our Defense effort and provide for significant cost savings?

ANSWER: The Department of Defense considers the exchange of information on the conflict in Lebanon to be very desirable, and we have been working hard to achieve this goal. Since the beginning of that conflict, we have been discussing exchange of information. We have, in fact, already obtained a significant amount of information through regular military-to-military channels, including specific information on weapons effectiveness and tactics in the ground and air wars. We are currently preparing to send teams to Israel to analyze in depth the different facets of this war.

We believe that all information we would wish to have can be exchanged under the 1979 US-Israel Memorandum of Agreement and the 26 existing Defense Exchange Agreements. Also, we will protect Israel's interest in information they provide to us in accordance with the General Security of Information Agreement (GSOIA) we have with them. This agreement was signed by Israel's Foreign Minister only last December.

We are prepared to provide Israel with the information we derive from the intelligence and materials they provide. We are currently awaiting their approval for us to send our teams into country so we can continue this process of data exchange.

Questions Submitted by Senator Proxmire

Budget to Most Likely Cost

QUESTION: According to various press reports the Defense Department is reevaluating a number of major weapon systems to reprice them at higher levels including the F-18, the A-6, the F-15 and F-16, MC-130H transport, the AH-64 helicopter, the Patriot missile and certain shipbuilding programs.

What can you tell us about this repricing study?

(An increase of $2 billion over 5 years is expected according to some reports.)

ANSWER: The FY 1984 budget has been developed utilizing the budget to most likely cost management initiative. Our weapon system costing is based on the Program Manager's best estimate incorporating the approved OSD/OMB inflation indices. This year we have required that independent cost estimates be done as a baseline comparison with the program manager's estimate to further enhance the quality of our cost projections.

The outyear programs have been similarly reviewed for proper pricing using existing budget criteria. As a result of the individual reviews, the following programs have been incremented:

	(Dollars in Millions)				
	FY 84	FY 85	FY 86	FY 87	FY 88
F-18	54.1	350.6	254.0	283.9	336.8
A-6	-	-	-	28.6	173.4
F-15 R&D	-	7.5	2.8	1.3	1.3
F-15 Proc.	24.4	46.7	85.5	69.2	70.7
F-16 R&D	-	25.0	7.1	-	-
F-16 Proc.	102.3	95.5	134.7	137.1	129.1
MC-130H	-	11.2	1.8	22.8	-
AMRAAM	-	-	-	170.9	307/5
TOTAL	180.8	536.5	485.9	713.8	1,018.8

Soviet Missile Test and SALT II

QUESTION: Mr. Secretary, have the Soviets violated the terms of the SALT II agreement by testing more than one new light ICBM?

ANSWER: [Deleted].

Small Mobile Missiles

QUESTION: Is it true that you are inching up toward a positive decision regarding the concept of a small mobile missile in lieu of the MX?

ANSWER: We are nearing the end of a complete reappraisal of the land-based ICBM issue, but no final position has been taken. It would be too speculative, therefore, for me to say how such a complex issue may be resolved.

Air Force Acquisition Study

QUESTION: Last month a study by General Robert T. Marsh, head of the Air Force Systems Command, concluded that current Air Fore projects have been underpriced and the real costs of these systems will cut into planned procurements in future years. For example, the study states that the Air Force should cancel some weapon systems, restrain new starts and free up money for high priority programs. It said that the Air Force procurement program is "in trouble."

Now Mr. Secretary, this is a high level report, commissioned by the Secretary of the Air Force, that in effect says your budget controls and your procurement strategies are simply not working.

Were the technical experts from the Air Force and the nine senior executives from major aerospace corporations that contributed to these conclusions just plain wrong?

ANSWER: The Air Force study on the "Affordable Acquisition Approach" acknowledges that the Acquisition Improvement Program contains many actions that increase program stability and that while we have made progress in implementing these initiatives, more emphasis is needed.

Land Use for Small Mobile Missile

QUESTION: Would not this concept subject a greater land area in the United States to attack?
ANSWER: Yes, any mobile basing concept will require more land than the Closely Spaced Basing mode.

Mobile Basing Concept

QUESTION: Would the small mobile missile use state and federal highways or be confined to military reservations?
ANSWER: We have looked at various methods of mobile basing for ICBMs including commercial and dedicated rail, off-road, ground effects vehicles, and road-mobile. The road-mobile concepts require use of the public highways as well as military reservations. The latter would be required for maintenance even for the extreme case of a continuously mobile system. None of the more viable concepts involve confinement to military reservations.

Verification of a Soviet Small Mobile Missile

QUESTION: Mr. Secretary, would not a Soviet deployment of a small mobile missile system greatly complicate, if not make impossible, our unilateral verification capabilities?
ANSWER: The key factor involves the details of the deployment mode of the missile. The US would require that any future arms control agreement permitting mobile missiles would have to provide for a range of measures specifically designed to ensure effective counting of mobile systems. We would expect that, in deploying a small mobile missile, the Soviets would have to include cooperative measures to ensure effective verification.

Cost to Achieve 1989 IOC for Small Mobile

QUESTION: What level of effort is required to meet that 1989 IOC (Initial Operating Capability)?
ANSWER: We have looked at two versions of road mobile basing for a new, small missile, each with an IOC in 1990. One contemplates use of public highways by 1000 missile transporters configured like commercial tractor-trailor units, and the other contemplates 1000 hardened transporters deployed on military bases, poised for dispersel on warning on public highways and within those bases. Acquisition cost of the first is estimated at $38.2 billion in constant FY 82 dollars. The second would cost $45.7 billion. An earlier IOC does not appear feasible.

Early IOC for New Mobile Missile

QUESTION: How much would it cost to move the IOC up to 1988?
ANSWER: At this time, we see no way at any cost to achieve a pre-1990 IOC for any viable system using a new small missile.

Status of Research on a Small Missile

QUESTION: With respect to the Armadillo program (SICBMs on road-mobile launchers):--What research has been done to date on building a 20 to 30,000 pound missile (versus 192,000 pounds for MX) and deploying them on military reservations, to be dashed on warning?

ANSWER: The small missile is in the study phase. It would take approximately two years before a full scale development program could be initiated. These studies seek to exploit emerging technologies, including propulsion, guidance, reentry systems, penetration aids, data processing, communications, nuclear hardening, advanced composite materials, and others. Two contractors were funded in FY 1982 to perform system definition studies of an Advanced Intercontinental Ballistic Missile for the 1990s. Advanced technologies would have to be tested and verified before missile performance in terms of weight reductions could be truly evaluated. This places a considerable risk in deployment plans which depend on a lighter weight missile.

Conversion of Pershing II

QUESTION: Have you considered converting the Pershing II missile (app. 10,400-16,000 pounds) to be deployed in Europe to a small ICBM by adding a third stage to the rocket? Why not?

ANSWER: Yes, we have considered the conversion of Pershing II for ICBM purposes, primarily in the hopes of quickly realizing a small, light weight ICBM capability. Based on the following reasons, we do not believe this is a viable concept. Significant redesign work would be required to correct design deficiencies relative to the ICBM environment. A new guidance system would be needed because the Pershing II guidance is a terminal one designed for short ranges and, therefore, not able to withstand the heat of reentry necessary for ICBMs. The current accuracy, when applied to ICBM ranges, would be too poor, only about 1000 feet, for a hard target weapon. To upgrade accuracy by replacing the terminal guidance with an advanced system such as those used in Peacekeeper would add significant weight and reduce payload to an unacceptable level. In addition, because of differences in the nuclear criteria in the two arenas of comparison, the missile would have to be redesigned significantly to increase its hardness against such effects as thermal and shock. Also, necessary range extension would require a new first stage, making a three stage booster; and that would drive the weight right back up to about 35,000 pounds.

QUESTION: In 1981, President Reagan announced his decision to pursue the Extremely Low Frequency submarine communication system in Northern Wisconsin and Michigan. This decision was directly contrary to that of the then Chief of Naval Operations, Thomas Hayward, to forego the system largely due to its unavailability after the first nuclear weapons exchange.

-- What research is being done to provide the Navy with the sort of survivable, reconstitutable submarine communication system the Navy wants (i.e., blue-green lasers, an enhanced TACAMO fleet, and improved satellite communications)?

ANSWER: In order to preclude any possible misunderstanding concerning the premise of your statement about a recommendation on the development of the Extremely Low Frequency (ELF) system, it should be noted that the former Chief of Naval Operations fully supported the deployment of this system. On November 24, 1981, two letters were forwarded to the Senate and House Appropriations Committees' Chairmen of the Subcommittees on Defense stating that the October 8, 1981, Presidential decision to deploy ELF was fully supported by the Navy. Admiral Hayward explained that he supported the development of the ELF system at the level of investment now proposed; the problem had always been in meeting new important strategic command and control needs within limited resources.

With regard to that portion of the question "What research is being done to provide the Navy with the sort of survivable, reconstitutable submarine communications systems the Navy wants," the FY 1984 request contains R&D funds to upgrade the experimental ELF system at the existing Wisconsin Test Facility. In addition, there are construction funds identified to start the ELF facility in Michigan. These two facilities working together synchronously, will provide the Navy communications connectivity with their nuclear submarines that will minimize any speed and depth restrictions on the submarine fleet. This operational capability has been long sought after by the Navy.

TACAMO is the primary survivable dedicated Navy relay communications system to the submarine missile forces. Changes in threat, national strategic policy, and increased operational capabilities of the sea-based strategic missile system with the introduction of the TRIDENT weapons system have expanded the mission requirements of the TACAMO airborne communications system beyond the capabilities of the EC-130 airframe. ECX is designed to overcome EC-130 deficiencies, perform the TACAMO mission of the future, and be less expensive to own and operate from the life cycle costs standpoint. Funding for the ECX in the FY 84 budget supports ECX as the top priority Navy strategic C^3 initiative.

While UHF satellites will continue to carry the majority of communications, Extremely High Frequency (EHF) satellites will provide minimum essential communications in a stressed environment. The FY 1984 request is for the continuation of both the EHF package and Navy terminal development including a submarine terminal.

The Navy Technological Alternatives Working Groups examined research and development recommendations in a number of areas concerning development of strategic communications and related technology. Reconstitutable/mobile VLF is considered ready for engineering development and this year's budget requests RDT&E funding to proceed into full scale engineering development.

Concerning blue-green lasers, a sstellite-to-submarine optical link is a communications technique of the future. Although limited blue-green laser experiments have occurred, the associated high-risk, high-cost technology cannot provide an operational capability until the late 1990's.

QUESTIONS SUBMITTED BY SENATOR TOWER

B-1B INITIAL OPERATIONAL CAPABILITY (IOC)

QUESTION: Can B-1B IOC be accelerated to be sooner than 1986?

ANSWER: Due to production lead times, 1986 is the earliest possible IOC for the B-1B. It should be noted that the first aircraft will be delivered in 1985 and possibly 1984. However, the IOC is defined as 15 aircraft fully operational with trained crews, support equipment, maintenance, and logistics support.

B-1B PENETRABILITY

QUESTION: If the ALCM-B is judged to have difficulty penetrating Soviet air defenses, will this judgment affect B-1B penetrability?

ANSWER: It must be noted that today and in the near future, the ALCM-B, [deleted].

Because of the current configuration of the ALCM-B, only a [deleted].

It is our assessment that the B-1B will be capable of effective penetration of Soviet air defenses well into the 1990s. [Deleted].

SUBCOMMITTEE RECESS

Senator RUDMAN. We will stand in recess.

[Whereupon, at 11:45 a.m., Thursday, March 3, the subcommittee was recessed to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

TUESDAY, JULY 26, 1983

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senator Stevens.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

RESEARCH, DEVELOPMENT AND ACQUISITION

STATEMENT OF LT. GEN. LAWRENCE A. SKANTZE, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, HEADQUARTERS, U.S. AIR FORCE

ACCOMPANIED BY:

COL. DAVID B. ENGLUND, DEPUTY DIRECTOR OF DEVELOPMENT AND PRODUCTION, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, HEADQUARTERS, U.S. AIR FORCE

COL. ORVIN H. RAMLO, CHIEF, TACTICAL WEAPONS DIVISION, DIRECTORATE OF OPERATIONAL REQUIREMENTS, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, HEADQUARTERS, U.S. AIR FORCE

MS. BEVERLY J. HOOPER, CHIEF, COMBAT SUPPORT PROGRAM DIVISION, DIRECTORATE OF LOGISTICS PLANS AND PROGRAMS, DEPUTY CHIEF OF STAFF, LOGISTICS AND ENGINEERING, HEADQUARTERS, U.S. AIR FORCE

COL. JEFFREY D. KAHLA, DEPUTY CHIEF, INVESTMENT APPROPRIATIONS DIVISION, DIRECTORATE OF BUDGET, HEADQUARTERS, U.S. AIR FORCE

MISSILE AND WEAPONS PROCUREMENT

INTRODUCTION

Senator STEVENS. Good morning. We are here to examine the Air Force and Navy budget estimates on major weapons programs as time permits.

Generally, we will be covering the missile and weapons procurement accounts and related research and development funding.

Most of our questions stem from a series of budget questions developed by the staff and answered in writing for the hearing record.

Our principal witnesses today will be Lieutenant General Skantze of the Air Force and Rear Admiral Nyquist of the Navy.

I think it best if we hear from General Skantze and go immediately to questions on the Air Force weapons program before taking Admiral Nyquist's opening statement.

I ask the leadoff witnesses to keep their opening statements brief and to the point so that we will have maximum opportunity for questions.

This year both the Air Force and Navy have proposed substantial program revisions in their budget estimates for certain weapon systems without the formality of a budget amendment.

I am thinking about MX and ALCM-B as Air Force examples and Harm and Bigeye in the case of the Navy. This does raise some concerns and I would like to talk about this during the hearing.

General Skantze, if you will be good enough to introduce those with you at the witness table, you may proceed with your opening statement. The full prepared statement submitted to the committee earlier will be printed in the record as usual. Then we will get some of the questions for you and we will proceed with the Navy.

We have about an hour and a half, gentlemen and ladies.

General SKANTZE. Thank you, Mr. Chairman.

PREPARED STATEMENT

I have a prepared statement which I will submit for the record.

[The statement of General Skantze follows:]

PREPARED STATEMENT OF LT. GEN. LAWRENCE A. SKANTZE

DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION

HEADQUARTERS, U. S. AIR FORCE

Mr Chairman and Members of the Committee

I am pleased to be with you to discuss Air Force Weapons Procurement programs for Fiscal Year 1984.

In procurement, we have balanced the important production of aircraft and missile systems with continued emphasis on spares, repair parts and other logistics requirements to improve our operational readiness and sustainability.

Air Force Weapons Procurement programs constitute a major element of the Department's efforts in tactical force modernization to make evolutionary improvements in our air-to-surface, air-to-air, night and all-weather combat capabilities. Our modernization program is based on having capable and affordable forces equipped to adapt to an array of threat environments and political situations.

The major threat facing our general purpose forces continues to be the numerically superior forces of the Soviet Union/Warsaw Pact. Massive Soviet investment has substantially eroded our qualitative advantage. Accordingly, we are pursuing carefully selected programs which enhance the flexibility, deployability, firepower and rapid response capabilities of our tactical air forces. To meet the Soviet challenge, we have constructed a modernization plan for maintaining our qualitative edge.

The ability of the Air Force to successfully wage war in the future depends, in large part, on its ability to cope with a growing and increasingly sophisticated surface-to-air and air-to-air threat. This problem extends equally to each of the primary Air Force mission areas of counter air, interdiction and close air support as well as to the maritime attack role. There are several ways to combat the threat, including suppressing it with a variety of destructive and disruptive countermeasures, and by avoiding it.

The Air Force weapons program calls for an affordable balance of direct attack, terminal standoff and long-range standoff weapons, and recommends they be employed in concert with the judicious use of defense suppression assets. The Air Force intends to provide the theater commander with a range of employment options which will increase the survivability of our forces while taking full advantage of the inherent flexibility of manned aircraft and our existing munitions inventory.

During the early days of a conflict in a sophisticated threat environment, standoff weapons will provide an important complement to penetrating aircraft. A balanced capability is needed to cope with the threat: long-range standoff weapons for use in the face of initial defenses; terminal standoff weapons as we succeed in reducing the enemy's capability for integrated area defense; and direct attack weapons essential for cost effective destruction of enemy targets as the threat environment is brought under control.

Since long-range standoff weapons are relatively expensive, targets must be carefully selected to provide the greatest leverage. Targets

which appear to warrant the investment include enemy airfields, surface-to-surface missiles, and key elements of the surface-to-air threat.

Maverick is the Air Force's primary tactical air-to-surface missile. It provides a high single shot kill capability against close air support, interdiction and defense suppression targets. The inventory versions are the AGM-65A and B which are television (TV) guided. While the AGM-65A and B are capable weapons, the TV seeker limits Maverick's use to visual contrast conditions (daytime only).

In Fiscal Year 1984, we will buy Imaging Infrared (IIR) guided Maverick missiles to expand our ability to destroy small, hard, tactical targets during night and limited visibility conditions. The IIR Maverick will complement the daylight only TV Maverick currently in the inventory and the laser version being developed for the Marine Corps. The Maverick can currently be employed on the F-4, A-7D, A-10, F-16 and the F-111F.

We will also continue qualification of a second source for the IIR Maverick to stimulate competition and to allow for increased annual production quantities. A qualification program is scheduled to start this year with an option for later production.

The GBU-15 guided bomb is entering the inventory. Current versions of this weapon use an electro-optical seeker similar to the TV seeker on Maverick. We are also developing an infrared seeker for this weapon to give it a night capability. By adding a rocket motor to the GBU-15, we are improving its standoff range and allowing the weapon to carry a variety of munitions. The powered version of the GBU-15 uses a unitary warhead and a dispenser with submunitions for defense suppression. Inclusion of other submunitions will be paced by the submunition development. This approach to standoff munitions was taken for quick inventory augmentation and reduced development cost.

We are also continuing with the Navy in the joint acquisition of the High Speed Anti-Radiation Missile (HARM), which will greatly improve the lethality of the destructive defense suppression platform, the F-4G Wild Weasel. HARM will be used against surface-to-air missile guidance radars, acquisition radars and early warning radars, as well as air defense artillery radars. It can, in conjunction with the F-4G, defeat not only the present, but also the more sophisticated threat emitters projected in the near future.

The Medium Range Air-to-Surface Missile (MRASM) offers relatively near-term, high-leverage, standoff capability for airfield attack. MRASM is ideally suited for carriage by long-range bombers, such as the Non-ALCM B-52Gs.

Over the last few years, Soviet tactical air power has changed from a limited range ground controlled intercept (GCI) defensive force to a formidable offensive force, including longer range aircraft with much improved avionics. They now have the capability to conduct strikes against targets anywhere in NATO Europe. In addition, they are fielding a new generation of fighters with many capabilities comparable to our present generation F-15s and F-16s and are developing a new air-to-air missile to give their aircraft a look-down, shootdown capability.

To bring today's readiness to an acceptable level, we must continue procurement of AIM-7 and AIM-9 missiles in Fiscal Year 1984. In the future, the Advanced Medium Range Air-to-Air Missile (AMRAAM) will equip the F-16 with a beyond-visual-range, all-weather, air-to-air capability and improve the lethality of our F-15 force.

The current adverse weather air superiority armament for the F-15 aircraft is the AIM-7 Sparrow air-to-air missile. The Fiscal Year 1984 request is for the AIM-7M, the latest version. It has an advanced monopulse seeker which provides improved capabilities over the previous configuration, the AIM-7F.

Sparrow performs a key role in countering the large number of enemy aircraft by providing the capability to attack enemy aircraft at medium beyondvisual-ranges. We must continue to procure the AIM-7 Sparrow through Fiscal Year 1984. Our near-term objectives are to increase the number of missiles available to our operational forces and correct our current inventory shortage.

The AIM-9 Sidewinder is an air-to-air, short-range missile and is the primary within-visual-range air superiority armament for both the F-15 and F-16. The Sidewinder is smaller and has a shorter range than the AIM-7. It is a heat seeking weapon rather than radar guided, and is limited to visual conditions. The Fiscal Year 1984 request is for the latest version, the AIM-9M, which has improved capabilities and a reduced smoke motor. As with the AIM-7 Sparrow, the supply of Sidewinder missiles is below our inventory objectives. Our immediate objective is to increase the quantities on hand to improve our operational readiness.

The most important program under development in this air-to-air missile area, which will enhance our combat effectiveness while reducing aircrew vulnerability, is the AIM-120A, AMRAAM. AMRAAM will provide a significantly improved performance envelope, increased average velocity, and a launch and maneuver capability that will help our aircrews avoid the close-in dogfight. AMRAAM is an all-weather, all-aspect, all-environment, air-to-air missile; it is smaller, lighter and faster than the AIM-7M, and with its active radar guidance, it allows pilots to attack multiple targets on a single intercept.

Due to their unique characteristics, the Ground Launched Cruise Missile (GLCM), Rapier and Stinger surface-to-air missiles and the Air Launched Cruise Missile (ALCM) are included in a separate discussion which follows.

GLCM, a surface-to-surface variant of the Tomahawk cruise missile, is a major initiative to enhance our nonstrategic nuclear forces. The major requirement for GLCM stems from concern among our NATO allies about the credibility of the Alliance's nuclear deterrent.

The primary elements of the GLCM system are the missile itself, a Transporter Erector Launcher (TEL) and a Launch Control Center (LCC). In Fiscal Year 1984 we are requesting funds to procure 120 missiles and continue our RDT&E effort.

Currently, our air bases in the United Kingdom are not protected from hostile aircraft by point defense systems. We are procuring the British developed Rapier short-range air defense fire units which will be operated by the Royal Air Force (RAF). In addition, we will procure test equipment and restock spares. The United Kingdom will man and maintain the sytems with RAF personnel.

In Fiscal Year 1984, we are also procuring the U.S. Army developed Stinger air defense missile system for some of our bases in South Korea. This capability will greatly improve our point air defense posture in Korea.

We are continuing procurement of the ALCM, the only major near-term strategic initiative we have to counter the growing expansion of Soviet military capabilities. ALCM enhances our bombers' capabilities by providing increased flexibility for bomber routing and targeting, reduced bomber exposure to defenses and increased defense saturation.

The planned ALCM force has decreased from 4348 missiles to approximately 3200 missiles to be compatible with the programmed bomber aircraft force structure. The force will be made up of a mix of ALCM-Bs and Advanced Cruise Missiles (ACMs). Currently, the ALCM force is programmed to be carried on B-52Gs, B-52Hs, and B-1Bs.

Due to significant advancements in cruise missile technology, we have an opportunity to substantially increase the long term military capability of this ALCM force by deploying ACMs. The ACM provides significantly improved range, survivability, accuracy and flexibility relative to the current ALCM. The original plan was to stop procurement of the current generation ALCM (the Boeing AGM-86B) in Fiscal Year 1983 (1633 cruise missiles) and transfer to the ACM. However, Congress reduced the Fiscal Year 1983 AGM-86B procurement by 110 missiles (1523 vice 1633 missiles) in anticipation of the ACM program.

The ACM competition was recently concluded with the full scale development contract award. At the same time, it was announced that the Air Force will initiate action to procure up to 240 additional AGM-86Bs in Fiscal Year 1984 (1763 total missiles). This provides for an orderly transition between the ALCM program while developing the ACM at the fastest prudent pace.

The ALCM plan outlined above recognizes significant advances in cruise missile technology, changes in the strategic force structure, evolving Soviet defenses and our desire to provide a logical and timely update to our ALCM force. The mixed force of AGM-86Bs and the ACM will significantly improve the long term effectiveness of the airbreathing force.

I have only mentioned a few of our significant weapons programs to give you an insight into the type of equipment the Air Force vitally needs.

In summary, we have made a good start toward meeting the Soviet challenge and restoring America's credibility. We must continue with our modernization efforts in Fiscal Year 1984 to achieve success.

GENERAL SKANTZE OPENING STATEMENT

General SKANTZE. Accompanying me today from my left is Ms. Hooper from our Munitions Procurement Directorate, Colonel Kahla from the budget shop, Colonel Englund, Directorate of Production, and Colonel Ramlo, Directorate of Requirements.

With that I have a very short opening briefing to provide an overview. With your permission, I will get by the podium to give that.

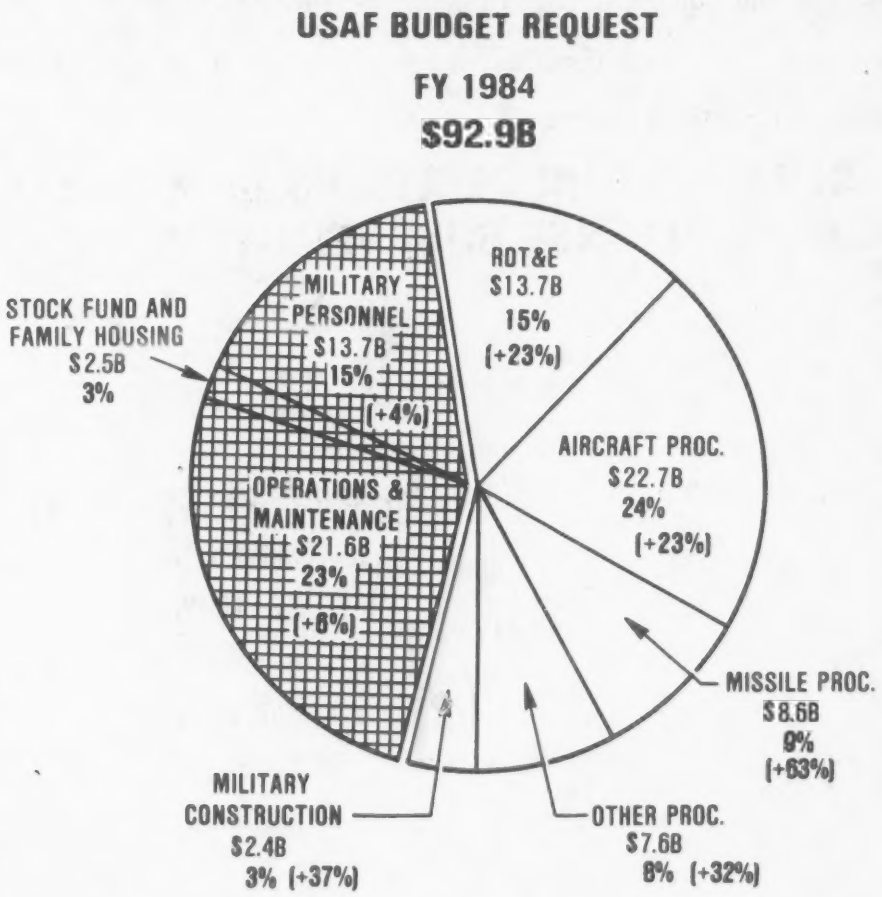
Senator STEVENS. All right.

SENATE APPROPRIATIONS COMMITTEE
DEFENSE SUBCOMMITTEE

DATE	HEARING
26 JULY 1983	WEAPONS PROCUREMENT
	MAVERICK
	SPARROW
	HARM
	SIDEWINDER
	ALCM
	AMRAAM
28 JULY 1983	AIRCRAFT PROCUREMENT
	B-1B
	F-16
	F-15
	DERIVATIVE FIGHTER
	C-5B
	KC-135

HEARING AGENDA

General SKANTZE. Mr. Chairman, this is the agenda for today. Today we will be covering the weapons procurement. We will be back on Thursday scheduled to cover aircraft.


USAF BUDGET REQUEST
FY 1984
$92.9B
STOCK FUND AND FAMILY HOUSING $2.5B 3%
MILITARY PERSONNEL $13.7B 15% (+4%)
OPERATIONS & MAINTENANCE $21.6B 23% (+6%)
RDT&E $13.7B 15% (+23%)
AIRCRAFT PROC. $22.7B 24% (+23%)
MISSILE PROC. $8.6B 9% (+63%)
OTHER PROC. $7.6B 8% (+32%)
MILITARY CONSTRUCTION $2.4B 3% (+37%)

VUGRAPH 2

USAF BUDGET REQUEST

This is the USAF budget request as part of the fiscal 1984 President's budget which amounted to $92.9 billion.

The cross-hatched area on the left denotes the operating accounts, principally dominated by military personnel costs, operations and maintenance which also includes spare parts.

The unshaded area which is approximately 59 percent of the budget submission is the investment account, RDT&E, aircraft, missile and other procurement.

MISSILE PROCUREMENT

Today we will concentrate on missile procurement. The request is $8.6 billion. That is approximately 9 percent of the total pie and represents a 63-percent increase from fiscal 1983 and the reason for that is that this account contains the MX production money which was not funded in 1983.

FY 1984 MISSILE PROCUREMENT REQUEST
$8.6B

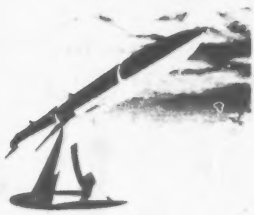
VUGRAPH 3

DOLLAR BREAKDOWN OF PROCUREMENT ACCOUNT

If I break out that procurement account by slices of this dollar bill, the "other support" contains principally about $1.2 billion for space systems and about $2.3 billion for special programs.

I mention that approximately $2.7 billion of the amount in the ballistic missile account is in the Peacekeeper. I will concentrate on other missiles.

OTHER MISSILES



FY 84 PROCUREMENT BUDGET REQUEST $1717.4M	
BGM-109 GLCM (120)	$604.6M
AGM-65D MAVERICK (2600)	$346.7M
AIM-7 M SPARROW (1005)	$183.7M
AGM-88A HARM (285)	$178.0M
AIM-9 M SIDEWINDER (1700)	$104.9M
AGM-86B ALCM (-)	$90.4M
RAPIER (-)	$62.9M
AMRAAM (-)	$62.6M
TACTICAL DRONES (400)	$48.8M
TARGET DRONES (-)	$30.0M
STINGER (108)	$4.9M

VuGraph 4

OVERVIEW OF OTHER MISSILE ACCOUNT

This is an overview of the other missile procurement account at $1.717 billion. You will note that each line shows what the program is, what the procurement request is and the numbers for fiscal 1984 and I will simply highlight the ones that are shown in yellow.

IIR MAVERICK

($ IN MILLIONS)

	FY 82 & PRIOR	FY 83		FY 85	TO COMPLETE	TOTAL
RDT&E	163.1	4.4		-	-	169.0
WPN SYS PROC	218.2	243.4		711.6	4,105.6	5,625.5
QUANTITY BUY	200	900		5,729	51,235	60,664
DELIVERIES	-	3		900	59,564	60,664

FY 84
RDT&E REQUEST

$ 1.5M

RELIABILITY TESTING 1.0
COMPUTER SUPPORT .5

FY 84
WPN SYS
PROC REQUEST

$ 346.7M

MISSILES 267.5
TNG/SUP/DATA 47.6
NONRECURRING 31.6

VuGraph 5

IIR MAVERICK

The Maverick program, the request is for $346.7 million with a buy objective of 2,600 IIR Maverick missiles. The 200 that we initially procured will be delivered starting this year.

We now have a second source, Raytheon Co., who will be in competition with Hughes, the prime builder, by 1985–86.

AIM-7M

(S IN MILLIONS)

	FY 82 & PRIOR	FY 83		FY 85	TO COMPLETE	TOTAL
RDT&E	4.5					4.5
WPN SYS PROC	465.0	197.2				845.9
QUANTITY BUY	2,161	1,165				4,331
DELIVERIES	61	812		1,157	1,706	4,331

FY 84
WPN SYS
PROC REQUEST

$ 183.7M

MISSILES 180.7
PECULIAR SUPPORT 3.0

VUGRAPH 6

AIM-7M

In the AIM-7M we will be buying out the balance of our objective, 1,005 missiles in fiscal year 1984. These will be AIM-7M's which is an improved version of the AIM-7F, with additional ECM capability in them.

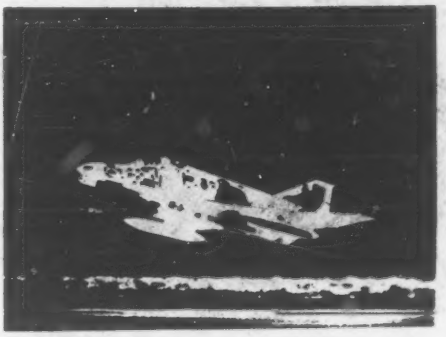
HIGH SPEED ANTIRADIATION MISSILE (HARM)

($ IN MILLIONS)

	FY 82 & PRIOR	FY 83	FY 84	FY 85	TO COMPLETE	TOTAL
RDT&E	22.7	4.8	6.1	3.7	-	37.3
WPN SYS PROC	87.0	111.8	178.0	327.8	2,416.9	3,121.1
QUANTITY BUY	118	129	285	572	7,902	9,006
DELIVERIES	-	-	118	247	8,641	9,006

FY 84
RDT&E REQUEST
$6.1M

PI	3.1
SIDEARM	2.5
TEST	.5



FY 84
WPN SYS
PROC REQUEST
$178.0M

MISSILES	128.5
NONRECURRING	36.1
PEC SUP	12.4

VUGRAPH 7

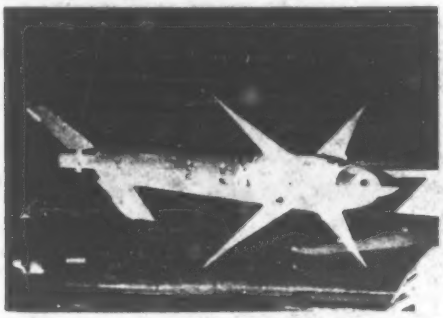
HARM

On the Harm, the Navy is now on contract with advance procurement for the 1983 buys for which we will have budgeted this much and expect to get 129 missiles. The request for 1984 is for $178 million to provide 285 missiles. We will expect to get delivery of our first missiles from these prior buys in the same fiscal year.

AIM-9M

($ IN MILLIONS)

	FY 82 & PRIOR	FY 83	FY 84	FY 85	TO COMPLETE	TOTAL
RDT&E	9.4	-	-	-	-	9.4
WPN SYS PROC	232.5	113.8	104.9	-	-	451.2
QUANTITY BUY	3,080	1,920	1,700	-	-	6,700
DELIVERIES	-	1,259	1,973	1,901	1,567	6,700



FY 84
WPN SYS
PROC REQUEST
$104.9M

MISSILES	102.9
PECULIAR SUPPORT	2.0

VUGRAPH 8

AIM-9M

On the AIM–9M, this in turn is an improved version of the AIM–9L which was used successfully by the British in the Falklands and Israelis in the Bekaa Valley. We have $104.9 million requested in 1984. That will buy us approximately 1,700 missiles and we will get very close to our total AIM–9 inventory objective, about 96 percent throughout the whole Air Force requirement.

AIR LAUNCHED CRUISE MISSILE (ALCM)

($ IN MILLIONS)

	FY 82 & PRIOR	FY 83	FY 84	FY 85	TO COMPLETE	TOTAL
RDT&E	1087.8	19.2	28.5	28.5	82.2	1246.2
WPN SYS PROC	1738.1	524.5	104.0	89.0	183.4	2639.0
QUANTITY BUY	1193	330	-	-	-	-
DELIVERIES	329	360	444	339	27	1523

FY 84
RDT&E REQUEST

$ 28.5M

AIR VEHICLE	8.2
REL TESTING	6.0
DEPOT SUPPORT	5.2
OTHER ALCM	11.1

FY 84
WPN SYS
PROC REQUEST

$ 104.0M

SUPPORT EQUIP	90.4
INITIAL SPARES	13.6

VUGRAPH 9

ALCM

On the ALCM, the President's budget contains a request for only support equipment and initial spares and it was not intended to buy any further ALCM-B missiles in 1984.

We did request an adjustment to that program based on a decision while we were going into full-scale development for the advanced cruise missile. The production decision on that will be delayed and we requested through the authorization committee when they were considering that to include 240 ALCM-B missiles in 1984 which both committees have put into the authorization.

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AMRAAM

($ IN MILLIONS)

	FY 82 & PRIOR	FY 83	FY 84	FY 85
RDT&E	214.4	206.5	188.6	201.2
WPN SYS PROC	-	-	62.6	427.4
QUANTITY BUY	-	-	-	224
DELIVERIES	-	-	-	8

FY 84
RDT&E REQUEST
$188.8M

CONT F&D	135.4
GOV'T SUP	35.5
CLASS II MODS	17.7

FY 84
WPN SYS
PROC REQUEST
$62.6M

RECURRING	34.3
NONRECURRING	28.3

VuGraph 10

AMRAAM

The final one is the AMRAAM. In fiscal year 1984 we are asking for long-lead money to buy the first of the AMRAAM improved air-to-air missiles to replace the AIM-7 with deliveries to come in the 1985-86 time frame.

With that as a brief overview, Mr. Chairman, we are prepared to answer questions.

BUDGET AMENDMENT FOR ALCM-B

Senator STEVENS. Let us go right to the ALCM-B. You are asking for 240 of those this year. That position has been supported by the authorization committee, but your budget request was to terminate production.

Can you explain to us why there has not been a budget amendment submitted and is that now an official Department position to support 240 ALCM-B's for 1984?

General SKANTZE. It is an official position of the Department. [Deleted.]

As we made the source selection and picked the winner and made the decision it became clear to us that we could not do that. [Deleted.]

BUDGET AMENDMENT

We testified to that in the authorization hearings and the net result of that was that both committees put the funds in to buy the 240. To my knowledge, we have not submitted an amendment as yet.

Senator STEVENS. Can we expect one?

General SKANTZE. I will certainly take that back, Mr. Chairman.

[The information follows:]

SUBMITTAL OF BUDGET AMENDMENT

On 15 April 1983, the Air Force notified the Chairman of the Senate Armed Services Committee of a proposed procurement of no more than 240 ALCM-B's in fiscal year 1984. On 31 May 83, Secretary Weinberger provided details in a special access package. The Air Force is in the process of preparing documentation for a budget amendment. At this time, however, the decision to submit an amendment remains under review within DOD.

ALCM-B PRODUCTION IN OUTYEARS

Senator STEVENS. We deal with the problem of what is budgeted and what is not budgeted and it will make a significant difference to this committee whether or not a budget amendment is submitted.

Both authorization bills permit $14 million in advance procurement for ALCM-B production in 1985.

Do you contemplate more ALCM-B production in the outyears? I don't remember the chart there as far as ALCM-B.

How far are you going to go with this production?

General SKANTZE. That is a possibility. We did not request any advance procurement funding for 1985, the Department did not. I think that was the judgment of the committees to put that money in as a hedge.

Senator STEVENS. Are we doing that because someone wants to keep the production line open or is that what you want?

General SKANTZE. We did not request that, Mr. Chairman.

Senator STEVENS. You did not request that $14 million for 1985 or you did not request the 240? Which is it?

General SKANTZE. We did not request the $14 million. We requested 240, but not the advance procurement money for 1985. That was the judgment of that committee based on the assessment of whether we ought to have that hedge.

Senator STEVENS. Is this tied in at all with the B-52 modification program?

General SKANTZE. It is from the standpoint that we load out the B-52's with ALCM's until we get the advanced cruise missile.

Senator STEVENS. I mean the 1985 money. Is it tied in with the B-52's?

General SKANTZE. The 1985 money would strictly be only for inventory missiles. It is someone's judgment as a hedge in case the advance cruise missile does not come along quickly enough.

Senator STEVENS. Can we expect a budget amendment for 1985, for long leadtime for 1985?

General SKANTZE. I will answer that when we respond to the basic request for the budget amendment, but it was not a Department request to have advance procurement money for ALCM-B's in 1985.

BALANCE BETWEEN MISSILES AND LAUNCHERS

Senator STEVENS. I am sure you realize we need the normal budget backup information, justification, procurement spending de-

tails, revised costs, ongoing production plans in connection with the revised budget amendment.

I would urge you to submit it. Our information is that you will have more ALCM-B's than you will have launchers for this year and for the next 2 years. If that is the case, why should we have 240 new ALCM-B's if you don't have launchers for them in the next 3 years, this year and the 2 more years?

General SKANTZE. I would like to submit an answer to that for the record. I would like to go back and look at the balance between missile deliveries and launcher positions.

[The information follows:]

BALANCE BETWEEN MISSILES & LAUNCHERS

While we will be short of launchers in the fiscal year 1986 and early fiscal year 1987 time frame, when we are taking delivery of these missiles, the situation reverses in mid fiscal year 1987. We continue to have more launchers than missiles through fiscal year 1988. In addition, producing ALCM-B's at a rate less than 240 per year causes unit cost to increase at a disproportionate rate.

UNIT COST OF PRODUCTION

Senator STEVENS. Will you also tell us what this program has to do with the unit cost? How is this acquisition going to affect the unit cost of production? Is this the minimum efficient rate of production for ALCM-B?

I want to know what the minimum level of production is for the ALCM-B rather than the 240. If the answer is that you don't have launchers this year and you won't have them for the next 2 years, it seems to us this is the minimum rate of production of ALCM-B's, that is what the authorization committee should have authorized and not just the full amount in 1 year.

General SKANTZE. I understand the question, Mr. Chairman. We will submit the answer for the record.

[The information follows:]

UNIT COST OF PRODUCTION

The production rate of 240 missiles per year (20 missiles per month) allows for one shift, one production line and one missile per work day operation. Producing below this rate becomes very inefficient with unit cost increasing at a disproportionate rate. While we will be short of launchers in the fiscal year 1986 and early fiscal year 1987 time frame, when we are taking delivery of these missiles, the situation reverses in fiscal year 1987. We continue to have more launchers than missiles through fiscal year 1988.

ALCM-B OPERATIONAL TESTS

Senator STEVENS. I am told that the two operational tests of ALCM-B have ended in a failure. Is that right?

General SKANTZE. We had two tests early in the year which were partial successes.

One was a hardware problem related to the pitch up of that missile and that was found and corrected.

The other one was one Tercom map which is a position fix that the missile makes, it was a bad map. We discovered that and we changed it. Since then we have had four successful consecutive launches which were full successes.

We corrected those two problems.

Senator STEVENS. We would like to see beginning in 1984 what the plan would be for the use of these ALCM-B's, the number of ALCM capable B-52's, the number of aircraft loads that you have of ALCM-B missiles on hand, and project that out for a period of years, say at least 5, so that we can see what the need is for the ALCM increased production.

ALCM R&D PROGRAM

I understand that you are seeking $28.5 million in 1984 for the ALCM R&D program. That is up $8.8 million over last year. That amount projected with another $28.5 million from 1985, it is stated in the justification, is necessary to correct mission planning deficiencies, initiate a combat environment reliability test program, develop depot support equipment and accomplish missile software maintenance.

Why at this stage of the ALCM is it necessary to have that much increase in R&D?

General SKANTZE. The support equipment is traditionally developed, if it is developed, in R&D. We are a little late in doing that. The environmental testing was something that we laid on on the basis of providing as much rigor and reliability and maintainability testing as we could.

I think the mission planning data system, and this is the program at Strategic Air Command Headquarters by which you take the missiles, take the targets and work out the route structure and how the missile is going to fly, this system is being improved so that you can do it without doing an enormous amount of hand calculation.

So, some of the money is going into doing that. Those are basically the pieces that fit into that.

Senator STEVENS. Do you have any plan for increasing ALCM-B in the outyears.

General SKANTZE. Numbers of ALCM-B's?

Senator STEVENS. Yes.

General SKANTZE. No, sir.

Senator STEVENS. Why should we be doing R&D now?

General SKANTZE. The development of the mission data system was done under the R&D account. These moneys are designed to complete the efficiency and the improvement of that data system so that it can be used more efficiently and more rapidly.

It started out as a computerized system with an awful lot of hand calculation work that went into it. We have had to improve the software and get more automation in how that is done so that the route planning can be done a lot quicker and targeting can be done a lot quicker. It has been done under that account.

PROCUREMENT FUNDING FOR MX

Senator STEVENS. Let us turn to MX then. We don't have any justification for the request for $2.5 billion under the new revised MX program as a result of the Scowcroft Commission report.

Can you tell us why that is the case?

General SKANTZE. The requested program, as you know, was developed prior to the Scowcroft Commission report.

Senator STEVENS. In the last budget amendment we have had, the justification was dense pack planning.

General SKANTZE. Yes.

Senator STEVENS. We don't have anything new. On what are we supposed to base our judgment as to the number of missiles necessary under the new plan and what is the breakdown of that budget expenditure under the new plan?

General SKANTZE. We can supply that for the record, but, as you know, Mr. Chairman, that recommendation was put together with a great amount of effort by not just the Air Force, but the Commission and the Department of Defense.

If your question is why don't we have the normal congressional data sheet that we should have to break that out, that is a pertinent question.

I will have to go back and ask why we didn't get those generated and why we didn't send them over. You know, that program has had a sort of special track of its own, if you will.

Senator STEVENS. I appreciate that and I appreciate the Scowcroft Commission made substantial changes in the program and the President approved that and we now will support that plan in authorization today, I presume. We don't know what you intend to buy with the $2.5 billion.

JUSTIFICATION FOR MX

We hear there have been delays, that there are some uncertainties now in terms of procurement and we are not certain that the initial procurement funding for 1984 needs to be the $2.5 billion. It is going to fall our task to defend the amount that is necessary. We don't have the backup to defend it.

General SKANTZE. We will provide that, Mr. Chairman.

[The information follows:]

JUSTIFICATION FOR $2.5 B FOR M-X

The updated Congressional Data Sheet for the Peacekeeper program is attached:

PRESIDENT'S FY 1984 BUDGET ESTIMATE
MISSILE DATA SHEET

P-1 LINE ITEM: 2
POPULAR NAME: PEACEKEEPER

SERVICE: Air Force
NOMENCLATURE: MX-118A: Land Based ICBM

DESCRIPTION: (U) The PEACEKEEPER is an advanced, Multiple Independently Targetable Reentry Vehicle Intercontinental Ballistic Missile (ICBM), with initial deployment in the mid-1980s. The missile subsystems will include an advanced guidance set derived from the Advanced Inertial Reference Sphere prototype. The three booster stages will contain an advanced solid propellant and lightweight motor cases and advanced nozzles which will produce about twice the propulsion efficiency of current ICBM systems. The Post Boost Vehicle, although significantly larger than that of MINUTEMAN, will use a similar, well proven configuration.

MISSION: The mission of the PEACEKEEPER is to support the SIOP while responding to current and projected expanded Soviet target base. Further, the current ICBM systems are somewhat deficient in the measures of flexibility which will be required in the 1980s to maintain a high level of deterrence across the entire spectrum of potential response. The pace and scope of Soviet ICBM developments will result in a destabilizing imbalance between US and Soviet strategic capability in the mid-1980s. PEACEKEEPER deployment is needed to alleviate this asymmetry.

COST DATA: (Dollars in Millions)

	FY 1981 & PRIOR	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	COST TO COMPLETE	CURRENT ESTIMATE TOT PROG 1/
Procurement - QTY	-	-	-	27	42	48	48	48	10	223 2/
- COST	-	-	-	2438.2	2901.3	2792.9	2746.1	2520.1	580.2	13977.6
Less: Adv Proc (PY)	-	-	-	2438.2	2901.3	2792.9	2746.1	2520.1	580.2	13977.6
Net:										
Add: Adv Proc (CY)	-	-	-	2438.2	2901.3	2792.9	2746.1	2520.1	580.2	13977.6
Weapon System Cost	-	-	-	97.8	241.1	32.0	16.1	12.4	1.2	400.6
Initial Spares	-	-	-	2536.0	3142.4	2824.9	2762.2	2532.5	580.2	14378.2
Procurement Cost	-	-	-	93.9	74.8	58.9	97.5	52.8	58.0	64.5
Procurement Unit Cost	-	-	1912.6	2054.0	1734.0	866.4	317.5	30.5	2.1	6897.1 1/
RDT&E	-	-	45.8	72.0	127.6	76.9	61.3	21.3	0	404.9 3/
MILCON	-	-	1958.4	4642.0	5004.0	3768.2	3141.0	2584.3	582.3	21680.2 1/
Program Acquisition Cost										89.219
Program Unit Cost										
Dept of Energy Costs (TBD)										

Basis for the FY 1984 Request: FY 1984 procurement funds will buy 27 missiles and associated operational support equipment.

1/ These costs identify the $16.6B estimate (FY 82 dollars), which equates to $21.7B in then year dollars, for the current Peacekeeper program which is based on the Report by the President's Commission on Strategic Forces, April 83, and the President's letter, 19 April 83, transmitting Strategic Forces Technical Assessment Review (31 March 83) to the Congress. Does not include $3199.5 in FY 82 and prior missile costs (development of flight test missiles and all equipment leading to first flight or 31399.2 in FY 83 and prior spent on earlier basing modes (Multiple Protective Shelters, horizontal shelter system, interim deployment in 40 Minuteman silos, and closely spaced basing) (then year dollars in millions).

2/ Does not include 20 RDT&E test missiles.

3/ Does not include $86.1 in FY 82 & prior year funds (then year $ millions).

CONTRACT DATA: PEACEKEEPER

	MAJOR SUBSYSTEMS	CONTRACTOR	PLANNED AWARD DATE	PLANNED CONTRACT DEFINITIZATION DATE	TYPE OF CONTRACT
Budget Year (FY 1984)	Assembly, Test & System Support	Martin Marietta, Denver, Co	Dec 83	Dec 83	CPIF 1/
	Operational Support Equipment	Boeing Aerospace, Seattle, WA	Oct 83	Mar 84	CPIF 1/
	Stage I	Thiokol, Brigham City, UT	Feb 84	Feb 84	FPIF 2/
	Stage II	Aerojet, Sacramento, CA	Mar 84	Mar 84	FPIF 2/
	Stage III	Hercules, Magna, UT	Apr 84	Apr 84	FPIF 2/
	Stage IV	Rocketdyne, Canoga Park, CA	Jan 84	Jan 84	FPIF 2/
	Reentry System	Avco, Needham, MA	Oct 84	Oct 84	FPIF 2/
	Guidance & Control Integration	Rockwell Autonetics, Anaheim, CA	May 84	May 84	FPIF 2/

1/ RDT&E Contract
2/ Production Contracts

COST HISTORY COMPARISON: PEACEKEEPER

	QUANTITY	($ Millions) AMOUNT
Development Estimate		
Procurement	223	14378.2
RDT&E	20	6897.1
MILCON	-	404.9
Program Acquisition Cost	243	21680.2
Current estimate total program (FY 1983 Budget Submission)		
Procurement	226	11,822.8
RDT&E	20	14,677.5
MILCON	-	1,720.9
Program Acquisition Cost	246	28,221.2
Current FYDP Funding (FY 1984 Budget Submission)		
Procurement	223	14378.2
RDT&E	20	6897.1
MILCON	-	404.9
Program Acquisition Cost	243	21680.2

Explanation of difference between FY 1983 and FY 1984

The FY 1983 Program Acquisition Cost reflected interim basing of 40 PEACEKEEPERS in MINUTEMAN silos. The development estimate and current program estimate contain funds to implement the permanent basing mode, 100 PEACEKEEPER missiles in MINUTEMAN silos as recommended by the President based on the request of the President's Commission on Strategic Forces. The total of $21.6802 billion in then year dollars equates to $16.6 billion in FY 82 dollars. A valid detailed comparison of the FY 83 and FY 84 submissions cannot be made.

INVENTORY/OBJECTIVE REQUIREMENTS - PEACEKEEPER

Inventory Objective, End of Planned Program FY 1988 Funded Delivery Period (FDP):	180
Inventory Beginning FY 1984 FDP	0
Deliveries FY 1984/FY 1988 FDP	213
Inventory Losses FY 1984/FY 1988 FDP	30
Inventory, End FY 1988 FDP	180

PRODUCTION DATA:

FISCAL YEAR QUARTER	QTY	FY 1982 & PRIOR	FY 1983 1 2 3 4	FY 1984 1 2 3 4	FY 1985 1 2 3 4	DELIVERIES FY 1986	FY 1987	FY 1988	TO COMPLETE
PROCUREMENT YEAR									
FY 1982 & Prior	-								
FY 1983	-								
FY 1984	27					3	24		
FY 1985	42						10	32	
FY 1986	48							12	36
FY 1987	48								48
FY 1988	48								48
Balance	10								10
Inventory Losses (During FY)						0	7	7	109
Inventory (End of FY)						3	30	67	100

NOTE: Inventory does not include 20 missiles for research and development testing.

TESTING OF MAVERICK

Senator STEVENS. On Maverick I am sure you are familiar with the GAO report and we have been looking at your response on that.

The point that they make is that there has been only limited testing under adverse weather conditions. Does the Air Force intend to test this Maverick and its capabilities in bad weather?

General SKANTZE. Maverick was never designed to operate in weather, Mr. Chairman. It is designed to operate in some adverse weather. It works in haze, we have tested it in dust, and it works under the weather, but Maverick has never been designed to work in weather. This is a misnomer.

I think that we did extensive additional testing in 1982 through the first 6 to 8 months of that year. I think that the results of that showed that the missile clearly would work in the performance environment it was designed for.

A lot of the rhetoric that is talked about is that it doesn't work in weather, but it was never designed for that because the missile has to be able to get a hot image of what is its target.

As you recall, we reduced the procurement in 1982 and also in 1983 to move slower on low rate production until we did additional testing, particularly with respect to reliability and maintainability. We have just completed a 100-hour test on the reliability and maintainability improvements and the missiles came through that with only one failure.

The Department of Defense has had a continual series of reviews with us in terms of moving ahead on each annual production increment.

In fact, about 2 months ago we had a review on the present fiscal 1984 request which DOD, Dr. DeLauer, went ahead and approved and we are going to do additional testing with the first production missiles we get which will incorporate some fixes to improve the manufacturing so that we can get the unit cost down.

I believe very strongly that we not only have a good missile, a successful missile, but we have a very disciplined program to build it up very slowly.

Senator STEVENS. I am reading from a May 2 memorandum from the Secretary concerning Maverick. The statement is that:

> The results are encouraging, but due to the small sample size and limited scope, the testing is considered inconclusive.

TESTING IN BATTLEFIELD ENVIRONMENT

Also we are told that another argument raised against Maverick is the ground clutter problem which would occur on the battlefield, that much of the low level night capability depends upon the ability of launching aircraft to operate in the environment of the battlefield.

It just does not seem that the missile has been tested in the adverse conditions that will be encountered in battle situations. Is that right?

General SKANTZE. I don't think that is a completely correct statement. We have run special tests to look at gunfire on battlefields where we were trying to employ the Maverick.

We have deliberately run tests to set up a hot spot where the target was and flew the aircraft in against that particular target just to confirm for ourselves that if you put all those things together, you could indeed have a situation to show that you break lock and target over to this other hot spot.

That is not a realistic test. We just simply did it to verify that, yes, that would happen. But that requires that someone has to know you are coming, has to know from what direction you are coming, has to get themselves in a position to be directly in the line of sight.

I think we have gone to an exhaustive degree in trying to demonstrate not only the performance of the missiles, but going even outside the reasonable envelope to show what happened.

Senator STEVENS. As I understand it, this is designed for a single-seat aircraft and the pilot of the aircraft is going to be operating primarily under night conditions using a LANTIRN navigation system and probably dealing with low visibility and some ceiling limitations and he is supposed to use this Maverick under those conditions, and yet the missile has not been tested under those circumstances.

General SKANTZE. Well, we have launched Mavericks at night from single-seat aircraft, F-16's and A-10's.

Senator STEVENS. Under adverse conditions?

General SKANTZE. Well, adverse being conditions where we had——

Senator STEVENS. Ceiling limitations, visibility limitations and ground clutter battle conditions?

General SKANTZE. Not to the total degree because to try to put all those conditions together in the total sense at one time, when the GAO says battlefield conditions, we have a problem of trying to describe what they want us to do short of World War III.

But we have exhaustively tested this missile. We have flown it in dust conditions, in low visibility. As a matter of fact, it is a tremendous improvement over the TV Maverick even in the daytime.

FUNDING DELAY

Senator STEVENS. Members of this committee have indicated they will attempt to delay the funding of Maverick until the missile has been tested under realistic battlefield conditions.

Will that be done?

General SKANTZE. We are going into another series of tests with the first production missiles. We deliberately cut back, and we did this unilaterally in 1982, we cut back the initial production to 200 and we said we would take those 200 missiles and we would use those as follow-on test missiles.

Senator STEVENS. I remember that.

General SKANTZE. It is on that basis that Dr. DeLauer agreed that we ought to proceed with the low rate production in 1983 and 1984 and as soon as we test that first batch of missiles, which I showed you would be delivered in 1984, those test results again will be looked at.

As you point out in that letter, they are all very encouraged by the test results thus far, but a tight string is being kept on the program until we get additional testing.

Senator STEVENS. I want to move on. I will give you some detailed questions on that, General, if you will be kind enough to answer them for the record.

Understand me, I think that the missile is a good missile. The trouble is if we are going to defend against these statements being made, we have to have some information.

AMRAAM TESTING

Now if you will turn to AMRAAM, again the assertion is made that there has been very little testing and that we are going into production ahead of critical design review and ahead of the completion of developmental testing.

Is that right?

General SKANTZE. In AMRAAM you have a case where the requirement in a very deliberate sense was judged to be very crucial and needed. I think we did a very good validation program on this missile with the two contractors, selected the winner.

The configuration that we are going to build is very, very close to what came out of the validation program.

Senator STEVENS. You say the winner. We still have two sources, don't we?

General SKANTZE. Yes, we have the second source. Hughes was picked as winner, Raytheon is second source.

SECOND SOURCE PROCUREMENT

Senator STEVENS. Do we need to go into second source before we have completed testing and critical design review?

General SKANTZE. The point is the sooner we get the second source qualified, the more effective it is going to be in the near term buys.

Now, what we have done is Raytheon is building in essence a Chinese copy. Hughes is under contract to help them do it and provide them the technical assistance to do it.

Senator STEVENS. Is that total acquisition dollar cost on this program?

General SKANTZE. Yes.

Senator STEVENS. Will the second source procurement keep the cost below that total acquisition dollar cost?

General SKANTZE. I personally believe it will. You may be aware that when we went through the DSARC to go ahead with full-scale procurement we had a difference with the Department of Defense on the out-year cost estimate on procurement.

There were some additional dollars put into the program which we do not believe will necessarily be needed and we are managing as a goal to lesser numbers.

CRITICAL DESIGN REVIEW

Senator STEVENS. You are asking for $188.6 million in R&D and $62.6 million in dual source procurement. It appears that the procurement is in advance of testing.

Is it normal to start procurement before critical design review?

General SKANTZE. Well, no, it is not normal. It is a function of how much confidence you have in the design that you are going to build and the validation.

In other words, we do have a critical design review, but we have a missile that came out of the validation program which is largely the missile we are going to build. So the critical design review in this case will be more a fine tuning of an existing missile that we have flown and built as opposed to something brand new.

So the risk, I would suggest, is in the schedule and how we manage that risk on a concurrent basis.

Senator STEVENS. One of the questions we asked was when will the development testing conclude and the answer was the entire full-scale development program for AMRAAM is scheduled to be completed in fiscal year 1986.

It did indicate that the development, initial operational testing period would be over by September 1984 for the 16 and September 1985 for the 15. You want to go into dual source procurement in 1984.

General SKANTZE. We are asking long lead for the first production which doesn't come until 1985. One of the reasons the flight test program extends is that we also have to qualify the missile on the F-18 and F-14 as follow-ons to the Air Force aircraft.

On a statistical basis we will continue to fire those missiles to build up the data base and do all of the testing in the various environments in which it needs to be done.

Senator STEVENS. I will submit the balance of those questions, too, General.

AXE

We note the budgeting of $10 million in the Air Force budget for AXE, a surface-to-surface ballistic missile that would attach airfields and runways.

Why is that an Air Force program if it is surface to surface?

General SKANTZE. In a way that is an anomaly. I think it is a program with great interest in DOD for that program. It is surface-to-surface.

By the determination that it goes against airfields the thought process somehow said it ought to be in the Air Force budget. That I think at this point in time is essentially a feasibility study validation of the concept.

Senator STEVENS. Don't you have air-to-surface missiles that you can rely on which are much lower in cost?

General SKANTZE. Well, we do, Mr. Chairman. I think we have a difference in philosophy.

Senator STEVENS. How are you going to get Air Force people up to the point where you are going to use surface-to-surface missiles?

General SKANTZE. That is a good question and I just don't think that we have enough understanding of how you would view something like AXE from an operational point of view.

Senator STEVENS. I will submit the balance of those questions, too.

[The information follows:]

AXE

The Air Force does not support funding for development of AXE, although we are currently conducting a concept evaluation. Among our reservations is that timely employment of AXE is dependent on the Air Commander receiving NATO border crossing authority. European exercises consistently reflect several hours for the NATO command structure to respond. If this obstacle were removed the concept could help deny Warsaw Pact sortie generation capability, but at considerable cost. The Air Force position is that, in the context of world-wide mission responsibility, AXE is an inflexible, one-shot, theater specific concept that is not cost effective.

WASP

You have $3.2 million for Wasp, a missile system of eight mini missiles contained in an aircraft mounted pod that employs a terminal seeker and a lock-on after-launch guidance capability.

I am told that that will provide a 24-hour adverse weather capability against armor targets. The question is: Is that technology now far enough along to warrant full-scale development in 1984?

General SKANTZE. I think in a sense it is because of some successes we have had in subsystem testing. We have had some successes in the initial shots and we have had some failures. I think the virtue of pressing ahead with that is really based on developing the millimeter wave technology.

I think in all candor we are a little bit ambivalent about whether we will be able to afford the missile, trying to look at it from a unit cost basis.

Senator STEVENS. The GAO indicates that the design would increase the weight and drag on the delivery aircraft such as the F-16 and that its cost and its schedule is too uncertain to be budgeted for now.

Have you responded to that report?

General SKANTZE. No, I don't think so.

Senator STEVENS. We will wait until we get your response.

Thank you very much.

[The information follows:]

WASP

The GAO alleged that the Wasp missile and pod would have to be increased in size in order to meet mission requirements and that the increased size could increase the weight and drag on the delivery aircraft. In fact, the missile and pod combination is now smaller than was originally conceived with all mission requirements still being achieved. The weight and drag imposed by the Wasp missile system on the delivery aircraft is less restrictive than those imposed by loads of current antiarmor systems.

As reported to the GAO, there will be some degree of uncertainty in capability, cost, and schedule of Wasp until the full-scale development program is complete. The purpose of the development program is to reduce this uncertainty and risk prior to a production decision.

EUROPEAN AIR BASE DEFENSE SYSTEM

Now a couple more questions on the European air base defense system. We appropriated $50 million for the extension of the Rapier model to European air bases last year.

Both of the authorization bills support $200 million to extend that program.

What is the current status of that defense program for the European bases now?

General SKANTZE. Beyond the arrangement that the Air Force has with the United Kingdom for the 32 Rapier fire units to go into the United Kingdom bases, where we are is in negotiation with the Germans which has been going on for quite a few months to try to come to some agreement on an air base defense scheme for the U.S. bases in the Federal Republic.

That negotiation process is still going on. We have made some progress, but it has not come to any conclusions yet. In all candor, we have not reached any kind of agreement, Mr. Chairman.

Senator STEVENS. Did you obligate the $50 million that was provided last year?

General SKANTZE. No, I do not believe we did.

Senator STEVENS. Is there any reason to expect that you will be requesting the full $200 million that is in the authorization bill if you haven't obligated the $50 million?

General SKANTZE. At this point, in my judgment, it is very speculative as to whether we will be able to obligate the $50 million. Again, I can't offer any conclusive judgment on how the negotiations are going to come out?

Senator STEVENS. Would you recommend taking the $50 million forward to 1984?

General SKANTZE. I guess on a personal basis, I would.

SUBMITTED QUESTIONS

Senator STEVENS. I have a series of other questions which are general in nature, General. I would appreciate your response. We will be, as I understand it, marking up this bill the first week we are back in September.

I have notified the chairman on the other side that we will follow his actions by 1 day. The day he starts marking up we will start marking up the next day so that we can try to move the bill before the end of the fiscal year.

It was our agreement that we would try to do that and keep it out of the continuing resolution, hopefully a few days ahead of the continuing resolution.

I would appreciate your courtesty if you would get us the information by that time.

General SKANTZE. I certainly will.

Senator STEVENS. Thank you very much, gentleman.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

ALCM

QUESTION: What are the program goals? How does this production tie into B-52 modifications and classified planning for the advanced cruise missile?

ANSWER: The FY 84 ALCM-B production program will procure 240 missiles to be delivered in FY 1986-1987. Missile quantities will be slightly higher than the number of spaces on modified B-52S until early FY 1987 when the increased number of B-52s modified for ALCM carriage eliminate this imbalance.

BUDGET BACKUP

QUESTION: Please submit to the committee at the earliest possible date all the normal budget backup for the ALCM-B production program in FY 84, including justifications, procurement spending details, revised costs, and any ongoing production plans.

ANSWER: Revised Budget justification documents P-7, P-12, P-22a and P-40 located in the Missile Procurement, Committee Staff Procurement Backup Book contain the requested information which is attached:

P-12 MISSILE WEAPON SYSTEM COST ANALYSIS

MISSILE: AGM-86B POPULAR NAME: ALCM P-1 LINE ITEM: 5 DATE: April 25, 1983

	BUDGET YEAR -1 FISCAL YEAR 83 (QUANTITY 330)	BUDGET YEAR FISCAL YEAR 84 (QUANTITY 240)	BUDGET YEAR +1 FISCAL YEAR 85 (QUANTITY -0-)
AIRFRAME/MISSILE	200.900	152.600	
PROPULSION	89.000	67.400	
ELECTRONICS	-	-	
GUIDANCE/CONTROL	90.000	62.900	
ARMAMENT	-	-	
OTHER	15.400	12.700	
ECO	21.300	15.000	
TOTAL RECURRING	416.600	310.600	
(UNIT RECURRING)	(1.287)	(1.294)	
NON-RECURRING	19.700	12.200	
TOTAL AIR VEHICLE	436.300	322.800	
(UNIT AIR VEHICLE)	(1.346)	(1.345)	
PECULIAR GROUND SUPPORT EQUIPMENT	50.300	90.400	82.400
TRAINING	6.100	5.200	-
DATA	9.500	8.100	-
SITE ACTIVATION	4.400	3.700	-
OTHER SUPPORT	-	-	-
TOTAL PECULIAR SUPPORT	70.300	107.400	82.400
GROSS WEAPON SYSTEMS COST	506.600	430.200	82.400
(UNIT WEAPON SYSTEMS COST)	(1.560)	(1.793)	
ADVANCE BUY CREDIT	-1.200	-8.000	
NET WEAPON SYSTEMS COST	505.400	422.200	82.400

NOTE: The attribution of costs shown in this exhibit is preliminary and tentative. It is subject to change as more definitive data becomes available. Actual procurement must be based upon contractual negotiations and requirements for phased procurement and will be accomplished within the total amount appropriated for this line item.

P-7 MISSILE ADV.. .S PROCUREMENT ANALYSIS

MISSILE: AGM-86B POPULAR NAME: ALCM P-1 LINE ITEM: ?

DATE: 25 Apr 83

	MAXIMUM LEADTIME (MONTHS)	BUDGET YEAR -1 FISCAL YEAR 83 (FY 84 QTY 240)			MAXIMUM LEADTIME (MONTHS)	BUDGET YEAR FISCAL YEAR (FY__ QTY__)			MAXIMUM LEADTIME (MONTHS)	BUDGET YEAR +1 FISCAL YEAR (FY__ QTY__)		
		CPE	GFAE	TOTAL		CPE	GFAE	TOTAL		CPE	GFAE	TOTAL
AIRFRAME/MISSILE												
PROPULSION			8.000	8.000								
ELECTRONICS												
GUIDANCE & CONTROL												
ARMAMENT												
OTHER												
TOTAL ADV PROC (LONG LEAD)				14Mo								
EOQ (MYP)												
TOTAL ADV PROC (CY)			8.000	8.000								

NOTE: The attribution of costs shown in this exhibit is preliminary and tentative. It is subject to change as more definitive data becomes available. Actual procurement must be based upon contractual negotiations and requirements for phased procurement and will be accomplished within the total amount appropriated for this line item.

PROCUREMENT HISTORY & PLANNING

DATE: 25 Apr 85

Appropriation/Budget Activity: Procurement 3020

P-1 ITEM NOMENCLATURE: Air Launched Cruise Missile

LINE ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE (OPTION)	CONTRACTED BY	P/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	SPECS AVAIL NOW	SPEC REVISIONS REQUIRED	IF YES, WHEN AVAILABLE
AIRFRAME											
1982	Boeing	SS/FPI	AFSC	-	Oct81	Nov83	440	$.505M	Yes		
1983	Boeing	SS/FPI	AFSC	Oct82	Jun83	Nov84	330	$.633M	Yes		
1984	Boeing	(Option)	AFSC	-	-	Nov85	240	$.636M	Yes		
ENGINE											
1982	Williams	SS/FPI	JCMPO	-	Dec82	Dec82	440	$.291M	Yes		
1983	Williams	SS/FPI	JCMPO	-	Jul83	Jul84	330	$.270M	Yes		
1984	Williams	SS/FPI	JCMPO	Aug83	Feb84	Apr85	240	$.281M	Yes		
Guidance Sets											
1982	Litton	C/FFP	JCMPO	-	Feb82	May83	440	$.243M	Yes		
1983	Litton	C/FFP	JCMPO	-	Jun83	Apr84	330	$.273M	Yes		
1984	Litton	C/FFP	JCMPO	Aug83	Feb84	Apr85	240	$.262M	Yes		

REMARKS:

Airframe: Boeing selected over General Dynamics in competition.

Engine: Williams selected over Teledyne in competition.

Multi-year contracting cannot be used because 1984 is the last year of procurement.

BUDGET ITEM JUSTIFICATION SHEET							25 Apr 83
Appropriation/Budget Activity 3020				Air Launched Cruise Missile			
	PY 82	CY 83	BY 84	BY+1 85	BY+2 86	BY+3 87	BY+4 88
Quantity	440	330	240	0	0	0	0
Cost ($ millions)	$ 597.1	$ 524.5	$ 445.0	$ 89.0	$ 74.5	$ 77.7	$ 31.2

DESCRIPTION:

The Air Launched Cruise Missile (ALCM) is a small, long range, accurate, nuclear armed air-to-ground cruise missile planned for use on the Bomber force. The missile is internally guided by an inertial navigation system which is updated by terrain contour matching. The ALCM greatly enhances the air breathing leg of the Triad by stressing and diluting Soviet defenses, thus improving the overall penetration prospects of the mixed air breathing force; compelling the Soviets to devote substantial resources to their national air defenses to counter this threat; increasing the number of weapons in our strategic forces in the near term and convincing the Soviets that their massive air defense efforts will not substantially blunt United States air breathing strike capabilities. The total objective for ALCM B is 1739 missiles at an estimated total cost of $3 billion. 1499 missiles have been procured in prior years and the final 240 missiles are included in the budget year. The ALCM is approved for Service use.

REDUCE '84 PRODUCTION PROGRAM

QUESTION: Information presented to the committee staff based on this revised program indicates the Air Force will have more ALCM-B's than it has launchers for this year and the next two years. In view of this, why can't we reduce the 1984 production program you now espouse?

ANSWER: The situation where there are more ALCM-Bs than launchers will exist most of the time through the FY 84-86 time frame. However, this situation will reverse in early FY 87. The FY 84 production program could be reduced, and additional missiles procured in FY 85 with no operational impact. However, missile unit cost would increase approximately 22% due to an inefficient production rate.

IMPACT OF REDUCING ALCM-B PRODUCTION

QUESTION: What would be the impact of reducing ALCM-B production in 1984 to, say, 100 or 150 missiles and producing the balance in the out years? What does this do to the unit cost?

ANSWER: There will be no operational impact in reducing ALCM-B production in FY 84 and producing the balance in FY 85. However, unit cost will increase approximately 22% by splitting production into two years.

FIVE YEAR BUDGET PLAN

QUESTION: Based on your current budget plan for ALCM-B, provide for the record by quarter, beginning in fiscal year 1984, the number of ALCM-capable B-52's and the number of aircraft loads of ALCM-B missiles on hand. Carry this out five years.

ANSWER:

	FY 84				FY 85				FY 86			
	1	2	3	4	1	2	3	4	1	2	3	4
ALCM-Capable B-52s***	64	72	82	92	103	106	106	109	115	121	126	132
ALCM Loads	64	74	83	92	100	106	113	120	126	131	136	141

	FY 87				FY 88			
	1	2	3	4	1	2	3	4
ALCM-Capable B-52s***	138	143	148	154	160	166	171	177
ALCM Loads	142*	142	139**	135	131	127	124	120

*Final ALCM-B delivered

**B-52H aircraft with 20 missile loads start entering the inventory. Size of ALCM loads for the B-52H with internal/external carriage capability increase; therefore, number of loads decrease.

NOTE: Advanced Cruise Missile deliveries not included.

***Based on delivery schedule from installation facility.

JUSTIFICATION FOR $2.5 BILLION

QUESTION: Please submit to the committee at the earliest possible date a full justification for the $2.5 billion budget estimate under the revised MX program.

ANSWER: The Air Force requires $2.536 billion in missile procurement funding ($2.4382 for weapon system and .0978 for initial spares) for 27 Peacekeeper missiles in FY 1984—21 for actual operational deployment and 6 for our operational testing and evaluation (OT&E) program to verify the system's performance and reliability for the Single Integrated Operational Plan. This planned buy will ensure the most costeffective production line possible, consistent with achieving an IOC (initial operating capability) of late 1986. The lead time for production and deployment of the missile is approximately 3 years. Thus, appropriations made available in FY 1984 are necessary to protect the late 1986 IOC and the late 1989 FOC (full operating capability).

Congressional denial of Peacekeeper procurement funds in FY 1983 resulted in significant program restructuring leading to a higher risk, rapid production ramp-up to support the late 1986 IOC. In sum, buying less than the 27 missiles requested would either impact the planned FOC for the program or reduce our confidence in weapon system reliability. Currently, we assess that stretching out the production line would cause the unit missile cost to increase, disrupt year-to-year manpower requirements, and consequently, could cause adverse socioeconomic impact in those states affected by program contracts and missile deployment.

MX PROCUREMENT FUNDING

QUESTION: In view of the persistent delays and uncertainties that have dogged the MX program, why shouldn't this initial procurement funding be sharply reduced?

ANSWER: The President's Commission on Strategic Forces recommended the need for a production program for the MX to:

- Enhance the likelihood of reaching a stabilizing and equitable arms control agreement.
- Communicate to the Soviets that the U.S. has the will essential to maintain effective deterrence.
- Provide U.S. retaliatory capabilities to promptly redress the serious imbalance caused by Soviet abilities to destroy hardened land-based military targets with ballistic missiles.
- Replace some of our aging Minuteman force.

In carrying out the Commission's recommendations, the President remains committed to an initial operating capability for Peacekeeper missiles by December 1986. The contracting and production lead times to support this capability require initial procurement funding in Fiscal Year 1984. The initial procurement funding requirements represent the level needed to support the directed initial capability.

MX MISSILE

QUESTION: What modernization and refurbishment will be done to the 100 existing Minuteman silos and associated launch control complexes coincident with the installation and fielding the new MX missile?

ANSWER: Minuteman silo: The launch facility consists of a Minuteman launcher (LF) and a launcher support building (LSB). The launcher LF will be modified to accept a shock isolated, canisterized Peacekeeper missile and its support equipment, and to provide maintenance accommodations. The LSB will accommodate Environmental Control System (ECS) equipment. The LF above ground modifications include load reaction points, maneuvering areas and site drainage. The existing fence does not change.

LF: The existing launcher structure, conductive penetrations, closure, closure actuating and locking mechanism, and personal access hatch (PAH) are not changed. Launch tube attachments for the cannister Shock Isolation System (SIS) suspension cables are modified as required. The interior of the launch tube is modified to interface with the lateral SIS. Internal launch tube protuberances are removed. The top portion of the upper launch tube is removed for maintenance access and to aid in debris management. The umbilical and support structure are relocated to be compatible with the canisterized missile. The PAH ladder bracket is modified to accommodate Motor Generator Control System replacement. A new guidance control cooling unit and emergency fan will be placed in the LF. The existing motor-generator set, missile ground power supply, lead acid batteries and battery charger will be removed. These items will be replaced by a new solid-state transformer rectifier/battery charging unit, static inverter, new missile ground supply and new sealed lead acid batteries for emergency power. Lithium batteries are to be added for survival power. The D-box and cabling are extensively reworked. Some rework is performed topside to the emplacer tie-downs, pylons are removed and jack pads are modified to accept greater loads. To accommodate new vehicle maneuvering the LF requires earthwork (cut and fill and regrading).

LSB: A new brine chiller and dehumidifier are to be emplaced in the LSB.

Minuteman Launch Control Facility (LCF) modifications include the addition of Higher Authority message processing equipment, new keyboards and Video Display Units and modifications to cables and consoles. The message processing automation is implemented by providing a direct digital interface between communications terminals and the processor, adding Higher Authority Message Processing/Higher Authority Launch Operations System software, providing a keyboard/visual display unit to the consoles, and modifying the software resident in the Weapon System Controller.

UPGRADES

QUESTION: How long will these upgrades take for each silo and launch complex?

ANSWER: The first site will be depostured in Jan 85. The Peacekeeper missile will be installed in Jun 85 and the

site turned over to SAC, operational, in Sep 86. At full production/deployment rate, each site will be depostured/ repostured in three to four months.

SCHEDULE OF TEST FLIGHTS

QUESTION: Provide a copy of the current schedule of the first 20 DT and OT test flights to include projected launch dates.

ANSWER: Specific launch dates for each of the first 20 DT&E/OT&E flights have not yet been determined. However, these flights are scheduled on a quarterly basis as indicated.

LAUNCH #	1 - 2nd qtr 1983	11 - 4th qtr 1985
	2 - 4th qtr 1983	12 - 1st qtr 1986
	3 - 1st qtr 1984	13 - 1st qtr 1986
	4 - 2nd qtr 1984	14 - 2nd qtr 1986
	5 - 2nd qtr 1984	15 - 3rd qtr 1986
	6 - 3rd qtr 1984	16 - 3rd qtr 1986
	7 - 4th qtr 1984	17 - 4th qtr 1986
	8 - 1st qtr 1985	18 - 1st qtr 1987
	9 - 3rd qtr 1985	19 - 1st qtr 1987
	10- 4th qtr 1985	20 - 2nd qtr 1987

MULTIPLE WARHEAD REENTRY VEHICLE

QUESTION: With respect to the SALT II multiple reentry vehicle limitations, through FY 1988 provide a month by month tabulation of the warheads scheduled for removal from a mission ready status and the number added to mission capable status associated with the termination of the Trident program and the fielding of the MX.

ANSWER: [Deleted.]

IMPACT OF DECISION

QUESTION: Has the decision to put the MX into existing Minuteman silos had an impact on this program? If so, what adjustments should be made to your FY 1984 budget request?

ANSWER: The impact of the decision includes a considerable reduction in requested RDT&E and military construction costs. Specifically for 1984, the request for appropriations is reduced by over $2 billion--from $6.695 billion to $4.642 billion (in then-year dollars)--as can be seen from below. The adjusted request (in then-year dollars) for FY 84 is shown in the Peacekeeper "in Silos" line.

ADJUSTED PEACEKEEPER REQUEST FOR FY 1984
(Then-Year Dollars, in Millions)

	RDT&E	PROCUREMENT	MILCON	TOTAL
- in CSB	$3,378	$2,868	$449	$6,695
- in Silos	2,034	2,536	72	4,642
Impact of Change	-1,344	- 332	-377	-2,053

FACILITIZATION AND TOOLING COST

QUESTION: By program year breakout the non-recurring investments to show required facilitization and tooling cost by major program system (e.g. Stage I, Stage II, Stage III, Stage IV, and guidance and control). For each of these investments, indicate the monthly production rate which this investment will sustain.

ANSWER: Non-recurring investments for facilitization and tooling for propulsion, guidance, and reentry systems are shown below by fiscal year (then year dollars in millions):

	84	85	86	Total
Propulsion	57.9	20.5	-	78.4
Guidance and Control	158.6	8.7	9.0	176.3
Reentry Systems	95.4	-	-	95.4

These investments sustain rates of 4 complete missile parts sets/month.

MAVERICK

QUESTION: How about Maverick's reliability problems? What is the established minimum maintenance requirement now?

ANSWER: The Air Force has fixed all reliability problems identified during testing. Each of the previously deficient evaluation criteria in operational testing which was tested in RMVP was met or exceeded.

The minimum maintenance requirements being put in the update to the Test and Evaluation Master Plan (TEMP) are:

Incoming Reliability .95
Logistics Reliability (MTBM) 36 hours

TAC established the minimum requirement (threshold) of 36 hours for logistic reliability based on their IR Maverick Maintenance Concept and Availability Model.

MAVERICK PROGRAM COST ANALYSIS

QUESTION: Provide for the record an updated Maverick program cost analysis (P12 exhibit) for fiscal years 1983, 1984 and 1985 reflecting the most recent revisions. Justify any upward revisions proposed for your FY 1984 programs. If portions of the FY 1983 program have been slipped to 1984, explain in detail where the freed up funds are now being applied within the 1983 program.

ANSWER: Attached is the requested P-12 exhibit for IR Maverick. There is no plan to increase the requested FY 1984 funding.

An FY 1983 Congressional cut, less learning than expected due to a reduced buy in FY 1982, and under estimating second source qualification costs resulted in an FY 1983 funding shortfall. This shortfall was offset by reducing quantity in FY 1983 and moving the procurement of some support and training equipment from FY 1983 to FY 1984. This shift in support equipment is consistent with the revised missile buy quantities and supports TAC's beddown schedule. Freed up funds in FY 1983 are being applied to missile quantity and second source.

P-12 MISSILE WEAPON SYSTEM COST ANALYSIS

AIRCRAFT: AGM-65D POPULAR NAME: MAVERICK P-1 LINE ITEM: 11 DATE: August 3, 1983

	BUDGET YEAR -1 FISCAL YEAR 83 (QUANTITY 900)	BUDGET YEAR FISCAL YEAR 84 (QUANTITY 2370)	BUDGET YEAR +1 FISCAL YEAR 85 (QUANTITY 5729)
AIRFRAME/MISSILE	2.9	6.4	17.1
PROPULSION	3.4	6.5	17.8
GUIDANCE/CONTROL	79.0	159.3	426.4
ARMAMENT	3.5	8.4	21.9
OTHER	71.2	65.9	85.5
ECO	8.8	12.5	33.9
TOTAL RECURRING	168.8	259.0	602.6
(UNIT RECURRING)	(.188)	(.109)	(.105)
NON-RECURRING	45.7*	17.0	54.7
TOTAL AIR VEHICLE	214.5	276.0	657.3
(UNIT AIR VEHICLE)	(.238)	(.116)	(.115)
PECULIAR GROUND SUPPORT EQUIPMENT	8.3	46.1	26.2
TRAINING	18.5	21.1	22.5
DATA	2.1	3.5	7.1
TOTAL PECULIAR SUPPORT	28.9	70.7	55.8
WEAPON SYSTEMS COST	243.4	346.7	713.1
(UNIT WEAPON SYSTEMS COST)	(.270)	(.146)	(.124)

*Includes second source qualification. Excludes $26.3M Congressional FY 82 carryover.

NOTE: The attribution of costs shown in this exhibit is preliminary and tentative. It is subject to change as more definitive data becomes available. Actual procurement must be based upon contractual negotiations and requirements for phased procurement and will be accomplished within the total amount appropriated for this line item.

MAVERICK SUPPORT EQUIPMENT

QUESTION: What would be the impact of funding your 1984 Maverick support equipment requirement at the requested level of $47.6 million?

ANSWER: Revised FY 84 funding requirements show that support funds in the amount of $70.7M are required to procure training missiles and missile test sets to meet the current Tactical Air Force beddown requirements. Failure to fund the revised support requirement of $70.7M by reducing support to $47.6M will greatly slow the pace of training and could reduce by 50% the number of IR Maverick operational squadrons planned to be activated by the FY 84 funding.

RELIABILITY MAINTAINABILITY VALIDATION PROGRAM

QUESTION: After reviewing the results of your recent Reliability Maintainability Validation Program, didn't the DoD conclude, on the basis of the small sample size, the testing was inconclusive and ask for more reliability testing?

ANSWER: Both OSD and the Air Force concluded that significant improvement occurred in all areas evaluated during the RMVP. Although the sample size was small, the trend was valid and positive, primarily due to the validity of the fixes and improvements incorporated. The follow-on operational testing will continue to evaluate missile reliability as would be done with any new weapon system. At this point, there is no evidence that indicates IR Maverick reliability problems have not been fixed.

DECISION MEMORANDUM

QUESTION: Provide for the record a copy of the Secretary of Defense Decision Memorandum for the IR Maverick program for the April 1983 DSARC review.

ANSWER: See attached document:

6 MAY 1983

MEMORANDUM FOR SECRETARY OF THE AIR FORCE

SUBJECT: AGM-65D Imaging Infrared Maverick

Based on the April 4, 1983 review of the Imaging Infrared (I^2R) Maverick program by the DSARC principals, the release of the balance of FY-83 funds in the amount of $243.4 million is approved for implementation of ECP 604, introduction of a second production source, and procurement of approximately 900 Segment II missiles, as briefed by the Air Force. Approval is also given to proceed with procurement of long lead requirements for Segment III production of 2600 missiles.

ECP 604 changes, including price and effectivity, should be contractually definitized and incorporated into the production baseline of both prime contractors as soon as possible. The Air Force should assume configuration management responsibility with the two contractors and foster a real time exchange of design and manufacturing data. The acquisition plan should be revised to include early reliability development testing (test, analyze, and fix) of ECP 604 subassemblies and it should include development of reliability improvements to the training missile where cost effective. The plan should be presented within 90 days.

The outline plan for a three-phased FOT&E/OUE addresses the outstanding issues regarding operational utility of I^2R Maverick. More detail is required. The Air Force should submit a revised TEMP to the DDT&E for approval within 90 days. The Air Force should establish a program for the development of interim and long term aids to provide training for pilots in identifying and acquiring targets using imagery from IR Maverick and other IR sensors. A plan for this program, including designation of primary responsibility, should be provided to ASD(MRA&L) within 90 days.

When the results of FOT/OUE are available, including complete verification of ECP 604 changes, the program will be reviewed by the DSARC principals to decide on the production rate ramp. The Segment III end item fabrication rate will be maintained at the maximum Segment II rate of 115 missiles per month until the review is completed.

AF/RDP

SUSPENSE

PLEASE RESPOND NLT

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RDP-223

FUNDING ADDITIONAL MISSILES

QUESTION: While the DoD has authorized long lead procurement for the 2,600 missiles in 1984, production is still restricted to 1,380 pending further review. I understand the next review will not occur until August 1985. Why should Congress fund 1,220 more missiles in 1984 than OSD has authorized you to produce?

ANSWER: OSD has authorized the Air Force to buy all materials, parts and components for the planned buy of 2600 IR Maverick missiles. The OSD constraint is on missile end item fabrication rate. The Air Force intends to contract for the production of 1,380 missiles and the production of all major subassemblies for the remaining 1,220 missiles. The basic contract will call for final assembly and test at a rate no greater than 115 per month with a contractual option to ramp-up final assembly to produce the remaining FY 1984 buy. Programmatically, the timing of that point in the FY 1984 production where end item fabrication must rise above 115 missiles per month is not until December 1985. Current plans call for an OSD review in August 1985. The FY 1984 funds necessary to accomplish final assembly and test of 1220 missiles are small. Given the favorable and improving trend in IR Maverick performance, it is important to maintain a program that permits production rates to increase thereby attaining an affordable unit price for the Government.

LONG LEAD PROCUREMENT

QUESTION: How much of your 1984 request is for the long lead procurement for your proposed 1985 buy of 5,729 missiles?

ANSWER: No part of the FY 1984 funding is for long lead procurement for the IR Maverick FY 1985 buy of 5,729 missiles.

HOURS BETWEEN MAINTENANCE

QUESTION: Your Reliability, Maintainability, Validation Program (RMVP) to demonstrate some reliability fixes has been called a success -- one failure in 103 captive carry hours. You claim 103 hour mean time between maintenance against a goal of 86 hours. Did any one of the 5 missiles go more than 86 hours between maintenance action?

ANSWER: None of the missiles used in RMVP flew 86 hours; however, during the laboratory RMVP demonstration one unit was operating without failure at 73.8 hours when the demonstration was completed. At the completion of RMVP all flight missiles were tested using Air Force test equipment and were found to be operating properly.

In addition to RMVP, one IR Maverick has been flown 45 sorties (approximately 80 hours) to support the Single Seat Night Attack development program with only one failure. This failure occurred in an older version of the cryoengine. The current version of the cryoengine has been improved. Since the improved version has been deployed, no cryoengine problems have occurred.

HOURS CARRIED

QUESTION: How many hours were each of these five missiles carried?

ANSWER: The following are the cumulative hours each of the five missiles flown during RMVP acquired:

Missile - 1 16.8 hours
Missile - 2 26.8 hours
Missile - 3 14.9 hours
Missile - 4 23.9 hours
Missile - 5 20.8 hours

At the completion of RMVP each of these missiles was verified as good using the IR Maverick test set. In addition, Missile-1 and Missile-2 remained in the field and accrued 30 more flight hours without a known failure.

Also, an IR Maverick was flown 45 sorties (approximately 80 hours) at Edwards AFB to support the Single Seat Night Attack program. This missile had only one maintenance discrepancy during this testing. The discrepancy occurred in the cryoengine. However, this missile had an older version of the cryoengine. The current version has been fixed to eliminate this problem. RMVP missiles and production missiles have the current version of the cryoengine.

RMVP FAILURE

QUESTION: On the one failure, how long had it been out of maintenance?

ANSWER: The single failure was on the third flight of a new missile and was discovered after 4.9 flight hours. The missile was repaired and flown an additional ten hours without failure before the completion of the RMVP program. The dome seal failed during flight. All the production missiles will incorporate the fix for this problem.

READINESS OF RMVP SYSTEM

QUESTION: At the 90% confidence level, the mean time between maintenance is about 34 hours. How can one conclude that the system is ready for full rate production?

ANSWER: The 103 hours MTBM for RMVP is a point estimate. The 86 hours MTBM threshold delineated in the IOT&E Master Test Plans (TEMP) is a mature system, point estimate threshold. The requirement for the 86 hour threshold cannot be validated. TAC, based on their IR Maverick maintenance concept and availability projections, has defined a minimum MTBM requirement of 36 hours. Based on RMVP and the additional 30 hours flown by TAC after RMVP was completed, an MTBM of 34 hours has been demonstrated at a 90% confidence level.

The significant improvement demonstrated during RMVP and the satisfactory IOT&E ratings given by the Air Force independent test organization, AFOTEC, for operational effectiveness supports Air Force proposed production rates. Ramp-up to full rate production doesn't start until FY 85 with full rate production occurring in FY 87.

AMRAAM

QUESTION: The Air Force is asking for $188.6 million in R&D and $62.6 million in dual source procurement for the Advanced Medium Range Air-to-Air Missile. Are total AMRAAM inventory quantities sufficient to justify the leader-follower approach?

ANSWER: Yes, the production quantities of AMRAAMs to be procured by the Air Force and Navy justify the leader-follower approach. The Air Force and Navy intend to procure (d) missiles and (d) missiles respectively for a total of (d) missiles. This is greater than the quantity of 20,000 missiles used in 1982 to assess the merits of the leader-follower business strategy. Even at that level, our analyses showed it to be cost effective to use a leader-follower approach.

Analysis shows that the leader-follower strategy would result in a cost avoidance of close to ten percent over a single source procurement. The analysis also indicated break even points for leader-follower versus sole source at quantities less than (d) missiles. The leader-follower strategy clearly minimizes costs for AMRAAM procurement at the quantities contemplated. The FY 84 procurement request is $33.8M for advance buy and $28.8M for nonrecurring to support initiation of the production program.

AMRAAM CRITICAL DESIGN REVIEW

QUESTION: When will the AMRAAM critical design review have been completed?

ANSWER: The AMRAAM long lead critical design review (CDR) is scheduled to be completed by 30 November 1983 with the final CDR to be completed by 30 August 1984.

AXE

QUESTION: The Air Force answered other questions to the effect that it has no plans to integrate AXE into its counter air strategy. But couldn't the AXE concept help deny to the Warsaw Pact a sortie generation capability within minutes after the war begins?

ANSWER: The Air Force is currently conducting a concept evaluation of AXE. Among our reservations is that timely employment of AXE is dependent on the Air Commander receiving NATO border crossing authority. European exercises consistently reflect several hours for the NATO command structure to respond. If this obstacle were removed the concept could help deny Warsaw Pact sortie generation capability, but at considerable cost. The Air Force position is that, in the context of world-wide mission responsibility, AXE is an inflexible, one-shot, theater specific concept that is not cost effective.

FUNDING AXE SYSTEM

QUESTION: The Air Force describes AXE as a moderate to high risk program. Why should we fund yet another complex missile system?

ANSWER: The Air Force does not support funding for development of AXE.

SAW

QUESTION: The Air Force originally submitted a budget request of $16.4 million for the Standoff Attack Weapon. However, now in mid-year, you have notified the Committee that SAW has been cancelled and the Air Force wants the money switched to start a product improvement for the GBU-15 glide bomb. What was the rationale behind this?

ANSWER: The Air Force chose a product improvement to the GBU-15 as the development strategy with respect to the Standoff Attack Weapon to reduce the development time and cost and to obtain early augmentation of a high precision weapon system into the inventory. The powered GBU-15 will increase the standoff range of the GBU-15 glide bomb, yet retain the high terminal accuracy and increase the payload to dispenser submunitions as well as unitary warheads. Initial production is planned for FY 1986.

PRODUCT IMPROVEMENTS

QUESTION: How extensive are the proposed product improvements to the GBU-15? How much of an improvement in range will there be over the current GBU-15?

ANSWER: Maximum use of existing, production GBU-15 glide bomb components is anticipated. Major improvements include the addition of a sustain motor which will provide [deleted] the range of the current GBU-15, a single airfoil group for both unitary and dispenser configurations, the addition of an aim-point compensator for altitude dispensing and an altimeter for flight profile maintenance. The SUU-54 dispenser, already in inventory, will be modified for combined effects bomblets dispensing.

R&D PRICE TAG/GBU-15

QUESTION: How extensive of R&D effort are you contemplating? What will be the R&D price tag?

ANSWER: Development of the powered GBU-15 with MK-84 unitary warhead and SUU-54 dispenser is projected to cost approximately $60 million. Peculiar development and integration of submunition is anticipated to cost $25 million. This development funding will be spread over FY 1984 through FY 1986. Cost estimates are Category IV, Planning.

INVENTORY OBJECTIVES/GBU-15

QUESTION: Do you have a firm inventory objective.

ANSWER: We have a firm inventory objective for the GBU-15. We are currently developing one for the powered GBU-15.

PRODUCT IMPROVEMENT FOR GBU-15

QUESTION: Why can't all this wait until FY 1985?

ANSWER: One of the major goals of this effort is to provide the tactical forces, as quickly as possible, with a significant new standoff capability while retaining high lethality through precision terminal guidance. A very compact program has been planned to attain initial production in FY 1986. Maximum use of existing equipment is planned to reduce development time, cost, and

risk. A delay would not only increase costs, but would significantly delay augmentation into the tactical force inventory of a much needed weapon.

WASP

QUESTION: The GAO has severely criticized Wasp, stating that the current design could increase the weight and drag on delivery aircraft, such as the F-16, and that its cost and schedule is still uncertain. What is the DoD reponse to these charges?

ANSWER: The GAO alleged that the Wasp missile and pod would have to be increased in size in order to meet mission requirements and that the increased size could increase the weight and drag on the delivery aircraft. In fact, the missile and pod combination is now smaller than was originally conceived with all mission requirements still being achieved. The weight and drag imposed by the Wasp missile system on the delivery aircraft is less restrictive than those imposed by loads of current antiarmor systems.

As reported to the GAO, there will be some degree of uncertainty in capability, cost, and schedule of Wasp until the full-scale development program is complete. The purpose of the development program is to reduce this uncertainty and risk prior to a production decision.

WASP DESIGN

QUESTION: Isn't the basic missile pod still undergoing design and wind tunnel analysis?

ANSWER: Yes, the basic missile pod design will continue to undergo design refinement and wind tunnel analysis up to critical design review within the full scale development program. At that time, the design will be frozen.

WASP R&D

QUESTION: How much R&D is left on the Wasp? When is full scale development scheduled for completion?

ANSWER: Full scale development for the Wasp missile system is scheduled to begin in FY 1984 and be completed in FY 1989. Approximately $484 million (a category I, comprehensive estimate) was programmed to accomplish this full scale development program.

COMMON STRATEGIC ROTARY LAUNCHER (CSRL)

QUESTION: The Air Force is budgeting for $41.5 million for the Common Strategic Rotary Launcher. The CSRL would give the Air Force a common launcher for gravity bombs, short range attack missiles, and cruise missiles for its B-52H, B-1B and ATB bombers. Your Descriptive Summary states that the program will reduce launcher designs and help realize maximum commonality. But what about costs? Will CSRL allow our bombers to carry a maximum, cost-effective payload?

ANSWER: The goal of the CSRL concept is to accommodate weapons in the current inventory plus be compatible with future nuclear and conventional weapons. For example, the CSRL will be designed to carry combinations of ALCM, SRAM, Advanced Cruise

Missile, and gravity weapons on the same launcher load. The CSRL must be able to accommodate Advanced Air-to-Surface Missile, Conventional Standoff Weapons, and the Medium Range Air-to-Surface Missile. The following represents CSRL loading requirements by aircraft (ATB requirements available separately).

	B28	B61	B83	AGM-69	AGM-86B	ACM	Conv Standoff Wpns
B-52H	4	8	8	8	8	4	8 (Goal)
B-1B	4	8	8	8	8	4	8 (Goal)

The CSRL will provide substantial life cycle savings since it reduces support costs. These savings are derived by common, vice unique, ground handling equipment, common vice unique test equipment, and adaptability to other existing or future weapons. More importantly, CSRL equipped bombers provide employment flexibility, not only in diverse weapons carriage, but also in reducing diverse loading systems required to support recovery and reconstitution scenarios.

Design Review

QUESTION: The critical design review for the CSRL is not until early next year. Why should we then approve long lead production?

ANSWER: We have not requested long lead production funding. Our budget request is for 15 kits and start up costs on a fully funded basis. There has been a delay in critical design review, and B-52H IOC, since submission of the budget. Accordingly, the Senate Armed Services Committee reduced procurement to one fully funded kit. This would allow for full production release in October 1984, which is necessary to meet the IOC.

CSRL ESSENTIAL TO B-52H IOC DATE

QUESTION: What will the long lead production funding buy? Is this essential to the maintenance of the B-52H IOC date?

ANSWER: We have not requested long lead production funding. Procurement funds for one fully funded kit would allow for full production release in October 1984, which is necessary to meet the IOC.

GLCM

QUESTION: What would be the impact of reducing the $54.3 million requested for engineering change orders back to the $36 million level for FY 1983 and projected FY 1985?

ANSWER: The Engineering Change Order (ECO) line is actually divided into two parts, ECO and management reserve. ECO is based on a percentage of recurring flyaway cost. The amount of management reserve required is a qualitative decision based on changes being experienced by the program, program complexity, and the phase the program is in. The ECO line included in the budget breaks down as follows ($ in millions).

	FY 1983	FY 1984	FY 1985
Recurring Flyaway	323.8	407.0	436.8
% ECO	9%	7%	5%
ECO	29.1	28.5	21.8
Management Reserve	6.9	25.8	14.8
Total	36.0	54.3	36.6

ECO funds are required to incorporate necessary changes into production equipment. As the program matures, fewer ECOs are required and the percentage of recurring flyaway costs estimated for ECOs decreases.

The increase in management reserve is caused by three factors: a change in Sea Launched Cruise Missile (SLCM) procurement in FY 1984, an increase in major GLCM equipment procurement in FY 1984 and FY 1985, and expected (but unknown) problems identified by the user during the first years of operational experience.

GLCM and SLCM missiles are acquired from the same production lines. As a result, a change in quantity procured by one program will affect the unit cost of the other program's missile. In the FY 1984 Budget Request there was a decrease in the SLCM buy from a previously planned 312 missiles to 124. This reduced the total missile (GLCM and SLCM) buy from 432 to 244 missiles. Due to this reduction, additional funds were added to GLCM management reserve to account for an increase in unit costs which cannot be accounted for in ordinary learning curve calculations.

Quantities of major GLCM equipments are increased in FY 1984 over FY 1983: missiles FY 1983-84, FY 1984-120, +43%; transporter/erector/launchers FY 1983-25, FY 1984-30, +25%; launch control centers FY 1983-15, FY 1984-18, +20%. Major equipment buys in FY 1985 are at approximately the FY 1984 levels. Additional management reserve was included as a result of these higher production rates.

Based on past experience in fielding new weapon systems, the user will identify several mission critical problems during the first years of operation. GLCM reaches IOC in Dec 83 and a higher management reserve was included for these user problems.

The impact of reducing the ECO line to $36 million is to place the program in jeopardy of not being able to procure equipment in the proper configuration to satisfy operational requirements or in the necessary quantity to meet the European deployment schedule.

GLCM NON-RECURRING EXPENSES

QUESTION: Explain in detail what the $28.2 million requested for GLCM non-recurring expenses will buy in terms of material, services, and/or monthly production rates.

ANSWER: These funds provide tooling and test equipment to attain rate production for GLCM equipment as follows: All-Up-Round (AUR) $26.1 million, Transporter Erector Launcher $1.4 million; Launch Control Center $.7 million.

The AUR funds represent GLCM's share out of a total requirement of $102.3 million; the remaining $76.2 million is contained in the Navy Tomahawk Sea Launched Cruise Missile (SLCM) budget request as SLCM's share of this cost. These funds will provide the equipment needed to fully fund tooling and test equipment lead time away to increase the production rate from approximately ten per month for one contractor to 25 per month for each of two contractors.

This was identified as the minimum production rate in a Memorandum of Agreement (MOA) between the government and each contrac-

tor. The MOA was agreed to by the government to obtain a technology transfer between contractors so as to have dual sources for both AURs and guidance sets.

GLCM MODS

QUESTION: General Skantze, you are requesting $19.5 million to perform unspecified update modifications to Ground Launch Cruise Missiles which have not even been deployed to the field. Provide for the record details of how the FY 1983 money ($3.6 million) has been spent and provide full justification for the FY 1984 request.

ANSWER: The FY 1983 GLCM update monies ($3.6 million) have been used to correct a deficiency uncovered during nuclear certification testing. The first ten Launch Control Centers (LCCs) and 19 Transporter Erector Launchers (TELs) will be modified with new electrical connectors and cables in the launch circuits to make it impossible to inadvertently launch the wrong missile.

The FY 1984 request provides funding for the correction of the following deficiencies found in early production articles. All these deficiencies are being corrected in the current production configurations.

Program	Funding ($ millions)
TEL Loading Door Retrofit	6.8
TEL Aft Door Retrofit	4.9
TEL Side Slope Tilt Retrofit	1.0
TEL Early Production Retrofit	1.4
MEP 404 Generator Retrofit	1.4
MEP 115A Tractor Deficiency Retrofit	4.0
	19.5

STINGER AIR DEFENSE MISSILE

QUESTION: You are requesting $4.9 million to purchase 180 Stinger missiles. General Skantze, which of the three versions of the Stinger missile (basic Stinger, Stinger POST, or the Stinger POST Follow-on) does the Air Force propose to buy?

ANSWER: The correct number of missiles is 108. The initial Stinger missile provided to the Air Force will be the basic version. These missiles will be provided by the U.S. Army on a loan agreement. The requested $4.9 million will be provided to the Army to help procure their FY 1984 proposed buy of basic Stinger and Stinger with Reprogrammable Micro Processor.

STINGER VERSION TO BE PRODUCED

QUESTION: Since it is not certain which version of this missile will be produced in 1984, don't you think it's a bit premature for the Air Force to be entering this Army program?

ANSWER: The basic version of Stinger has been in production for several years. The Air Force does not believe it is premature to enter this on-going program.

DEFERRING PROCUREMENT

QUESTION: What would be the impact of deferring your initial procurement of the Stinger until at least 1985?

ANSWER: Deferring initial procurement of Stinger until at least 1985 would delay the operational capability date by at least one year. [Deleted.] In addition, the loan agreement between the US Army and US Air Force to provide early availability of some basic Stingers could be voided.

MINUTEMAN MISSILE MODIFICATIONS

QUESTION: You are requesting $23.5 million to continue modification programs for your Minuteman missiles. Since 100 of these will be replaced by MX's, what revisions have you made to this modification program, and how much of your 1984 modification program is not needed? If you do not have the specifics, provide them for the record.

ANSWER: The $23.4 million provides funding to complete kit acquisition for the Minuteman Extended Survivable Power Program begun in FY 1982. This effort will modify 200 Launch Facilities at Malmstrom AFB, Montana and will increase the effective survivable power time by a factor of 15 over what is now available. The MX will be deployed at F. E. Warren AFB, Wyoming, therefore no revisions will be made to this modification.

Questions Submitted by Senator Stennis

CURRENT STATUS OF IR MAVERICK

QUESTION: During the last couple of years, we have had a lot of adverse comments in the press and on television on the Air Force's IR Maverick air-to-ground missile. What is the current status of this missile with respect to production and the possibility of a second source of production?

ANSWER: The current IR Maverick design meets Air Force requirements and is producible. The Air Force is currently on contract with a second source contractor for the purpose of production qualification. To reduce missile cost, the Air Force is not only developing competition through the second source, but also a series of engineering changes, called ECP 604, are being incorporated to improve missile producibility.

In addition, a separate Value Engineering Program now under way has already led to significant potential cost savings ideas. The key to the economical production of IR Maverick, however, is efficient rate. Initial IR Maverick production is being held at a low rate pending more test results. To achieve reasonable unit costs, these low rates must not be reduced further and production ramp-up to efficient rates (full rate), now scheduled to start with the FY 85 buy, must be accomplished.

IR MAVERICK TEST PROGRAM

QUESTION: Comment briefly on the IR Maverick test program, and give us your opinion as to the validity of this test program.

ANSWER: The results of RMVP demonstrate significant improvement in all areas of reliability tested. All evaluation criteria previously found deficient in IOT&E and tested in RMVP were met or

exceeded. Although the sample size was small, the trend was valid and positive, primarily due to the validity of the fixes and improvements incorporated. The Air Force actually demonstrated that 80% of the reliability fixes were valid before the end of IOT&E. However, the Air Force independent test organization, AFOTEC, does not remove failures/maintenance write-ups from the data base even though corrections have been validated during continuing tests. In reality the reported IOT&E reliability was a conservative estimate and the actual missile reliability was better.

IIR MAVERICK CAPABILITY

QUESTION: Would you also comment on the capability that the IIR Maverick gives the Air Force that you do not have with existing weapons?

ANSWER: Essentially, there are three additional capabilities that the IIR Maverick provides which we do not have with existing weapons:

a. (deleted)
b. (deleted)
c. (deleted)

The IIR Maverick represents most of USAFE's capability to execute the antiarmor mission at night and/or in limited visibility which constitutes approximately 75% of a typical average European winter day. [Deleted] which significantly enhances the attack aircraft's survivability. Additionally, [deleted].

In summary, the IIR Maverick is a key Air Force weapon for combating the massive Soviet armor threat and is very important to supporting the US Army and Allied ground forces.

SECOND SOURCE PRODUCTION CAPABILITY

QUESTION: Your statement mentions qualification of a second source for IR Maverick. When do you anticipate that a second-source production capability will be available?

ANSWER: Air Force plans call for second source pilot production of 500 missiles in FY 85 and competition to start in FY 86. The production split will be based on the FY 86 production proposals.

PLANS FOR REMAINING AIR BASES IN EUROPE

QUESTION: The Air Force is producing the RAPIER missile for point defense of our air bases in the United Kingdom. What are your plans for our remaining air bases in Europe?

ANSWER: In Germany, Air Force efforts to improve air base air defense focus on Army and Host Nation programs. The US Army's air defense improvement program will provide in place point air defense (PAD) [deleted]. The US and Federal Republic of Germany (FRG) are currently involved in discussions on cooperative air defense arrangements. [Deleted] [deleted]. The new target date for an initial US-FRG cooperative air defense arrangement is October 1983.

The Office of the Secretary of Defense (OSD), along with the Air Force and the Army, has also begun cooperative air defense discussions with the Netherlands and Belgium. [Deleted] [deleted]. The US has conducted only

preliminary discussions with Belgium, therefore, the scope of possible arrangements has not been defined.

[Deleted.] In order to assess the extent of the PAD requirement, the Air Force is currently reviewing the threat and available defenses in Southern Region, to include planned Host Nation improvements. Additionally, the Air Force requested the Army review the extent to which it could provide air defense support for air bases in Southern Region. Based on the results of these two efforts, the Air Force will develop an overall strategy for improving air base defenses in Southern Region.

RESPONSIBLE SERVICE FOR PROTECTION

QUESTION: Is there still a roles and missions argeement between the Army and Air Force as to the responsible service for protection of our air bases?

ANSWER: Yes, current directives and agreements between the Army and Air Force concerning the protection of our air bases indicate the mission area continues to be shared between the two Services--the Air Force charged with the responsibility of ground defense of the air base and the Army primarily responsible for air defense (e.g., point air defense) of the air base. Ultimately local air base defense is the responsibility of the installation commander. Therefore, since the Army is not always physically located near our overseas air bases, the Air Force has been directed to develop an air defense capability of its own; for example, in the United Kingdom a number of our air bases are protected by the RAPIER surface to air missile system, procured by the US Air Force and manned by the United Kingdom. The two Services plan to continue working together to insure our air bases are properly protected during future combat operations.

DEVELOPMENT PROGRAM FOR AIM-120A AMRAAM

QUESTION: Where do we stand on the development program for the AIM-120A AMRAAM? When will it be ready to introduce to the fleet?

ANSWER: The AMRAAM is in the 20th month of a 50 month full-scale development (FSD) program. The effort is currently focused on the fabrication and test (at the component/subsystem level) of FSD hardware and software to support the start of Development Test and Evaluation/Initial Operational Test and Evaluation (DT&E/IOT&E) scheduled to begin in December 1983. The DT&E/IOT&E launches are expected to start in March 1984. A second major emphasis during this phase of FSD is on production planning.

First deliveries of production AMRAAMs are expected to begin in September 1985. This will allow us to meet a scheduled Initial Operational Capability (IOC) of [deleted].

ADVANCED MONOPULSE SEEKER VS AIM-7F

QUESTION: Your statement speaks of the improved capability that the advanced monopulse seeker gives the AIM-7M Sparrow over previous models. Just what does this version do that the AIM-7F does not?

ANSWER: The advanced monopulse seeker primarily gives the AIM-7M Sparrow an improved (deleted) performance.

CURRENT INVENTORY SHORTAGE OF SPARROW

QUESTION: You spoke of a current inventory shortage of the Sparrow. When will this be corrected?

ANSWER: The Air Force [deleted] procurement year for AIM-7). We will then begin to procure the AMRAAM in FY 1985 to begin to address the remainder of the beyond visual range air-to-air missile requirement.

CONTINUE PROCUREMENT OF SPARROWS

QUESTION: With the AMRAAM coming on well in its development program and its significant improved capability over that of the Sparrow, is it your plan to continue to procure Sparrows within the foreseeable future?

ANSWER: The Air Force plans to continue AIM-7 procurement through FY 1984 to allow the orderly phase-in of AMRAAM procurement in FY 1985.

SECOND SOURCE FOR HARM

QUESTION: Where do we stand on a second source for the High Speed Anti-Radiation Missile (HARM)? Congress included funds in fiscal year 1983 to qualify a second source for this missile.

ANSWER: The DOD determination of a single source acquisition strategy for HARM is fully supported by the Air Force. The Air Force does support continued competition in programs where the benefits outweigh the cost of competition. In order to continue HARM competition in the most beneficial manner, we are investigating an accelerated development of a reduced cost seeker proposed by the Navy during the HARM DSARC. In terms of procurement, the Air Force wishes to use the HARM funds appropriated in the most cost effective manner such that we can procure HARM in quantity, and reduce the HARM unit cost via the efficiencies of volume production.

TIME PERIOD FOR NEW DEVELOPMENT

QUESTION: Your statement mentions development of an infrared seeker to give the GBU-15 a night capability. What time period are we speaking of when this capability will be available?

ANSWER: The infrared seeker is currently in development, test and evaluation. This capability will be available for production in FY 85.

INCREASED PRODUCTION OF GBU-15

QUESTION: The GBU-15 is still at a very low rate of production, with only 250 units being produced annually. This appears to be a costly proposition. Do you plan to increase the number being produced annually to a more efficient number?

ANSWER: Yes. Current five year planning calls for increasing procurement of GBU-15 to approximately double the present procurement. However, procurement quantities are evaluated annually and plans may change based on operational requirements.

SUFFICIENT FUNDS IN FY 84

QUESTION: The Air Force plans to product-improve the GBU-15 guided bomb as the answer to the Standoff Attack Weapon (SAW) requirement. Are there sufficient funds in the fiscal year 1984 budget to develop a family of GBU-15 P^3I weapons in a timely fashion?

ANSWER: Yes. The President's Budget Request is sufficient to develop a powered GBU-15 with a MK-84 unitary warhead and with a SUU-54 dispenser loaded with Combined Effects Bomblets for defense suppression. The total development cost for the GBU-15 P^3I program is approximately half that of the original Standoff Attack Weapon. Production is scheduled to start in FY 86. The lower development costs and early augmentation into the inventory were major reasons the Air Force chose the P^3I approach to the SAW requirement.

DEPARTMENT OF THE NAVY

STATEMENT OF REAR ADM. JOHN W. NYQUIST, U.S. NAVY, DIRECTOR, SURFACE COMBATANT SYSTEMS, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

ACCOMPANIED BY:

REAR ADM. S. J. HOSTETTLER, U.S. NAVY, DIRECTOR, JOINT CRUISE MISSILE PROJECT OFFICE

CAPT. L. KAUFMAN, U.S. NAVY, PROJECT MANAGER, DEFENSE SUPPRESSION SYSTEMS, NAVAL AIR SYSTEMS COMMAND

LT. COMDR. S. R. AUSTIN, U.S. NAVY, AVIATION PLANS AND REQUIREMENTS DIVISION, OFFICE OF THE DEPUTY CHIEF OF NAVAL OPERATIONS (AIR WARFARE)

INTRODUCTION OF ASSOCIATES

Senator STEVENS. Good morning, Admiral. Do you have a statement to make?

Admiral NYQUIST. Yes, sir, Mr. Chairman.

Senator STEVENS. Please proceed.

Admiral NYQUIST. It is a pleasure to appear before you today to present the Navy's requirement for weapon procurement as contained in the fiscal year 1984 President's budget.

I have with me today Rear Adm. Steve Hostettler, Director of the Joint Cruise Missile Project Office; Capt. Larry Kaufman, Project Manager for Defense Suppression Systems, and Comdr. Sim Austin from the Office of the Deputy Chief of Naval Operations for Air Warfare.

These officers are prepared to assist in answering any detailed questions you may have.

With your permission, I am submitting a statement for the record which discusses those programs that I understand are of particular interest to the committee. With your permission, Mr. Chairman, I will briefly summarize that statement.

BUDGET REQUEST

For fiscal year 1984, $372.8 million is resquested to fund the procurement of 124 Tomahawk missiles and provide advance procurement of long lead materials in support of fiscal year 1985 procurements.

The House Armed Services Committee has fully supported this request.

The Senate Armed Services Committee has recommended reduction of 36 missiles and $106.2 million from the submitted budget.

The reasons associated with this reduction include a recommendation to return to amortized funding for tooling and test equipment, and a concern that the Navy has not adequately planned for

the employment of the nuclear land attack version aboard surface ships.

The Senate Armed Services position would reduce the WPN funding back to the amortization level and force amortization costs back into the outyears, causing a net increase in flyaway unit cost.

A cost increase to the total Navy and Air Force Tomahawk program of over $129 million across fiscal year 1985 through 1988 would result due to the change in amortization. I would like to stress that the Navy does in fact have an employment strategy for nuclear land attack Tomahawk as well as conventional land attack and the antiship variant aboard surface combatants.

This strategy is no different than the proposed submarine employment plan. TLAM/N dispersed in our surface combatants provides a visible increase in our deterrent capability and significantly complicates Soviet targeting efforts.

The comprehensive report on the concept of operations for TLAM/N requested by the Senate Armed Services Committee is in staffing and will be provided.

Mr. Chairman, you have expressed concern over the technical problems experienced with the conventional TLAM attack version of Tomahawk. As you are aware, the Tomahawk program was restructured early this year to correct problems in flight testing and production quality control.

A comprehensive correction plan is now in place to ensure a smooth transition to full rate production. Following this restructuring we interrupted production of the TLAM/C missile in order to develop an improved variant with a terminal guide maneuver and unitary warhead.

Another equally essential variant will carry a submunition warhead, enabling multiple target kills against high priority area targets. Conventional land attack Tomahawk is fundamental to the future maritime strategy of the United States. It will provide unmistakably clear evidence of our offensive capability.

We urge your support of this vital program.

The early problems experienced in this program including management aspects, though not completely solved, are well in hand. Since restructuring, 10 of 12 Tomahawk test firings have been successful, including the last 7 in a row.

I thank you for your support in allowing the Navy to reprogram fiscal year 1983 funds necessary to continue the restructured program and we ask for your continuing support.

HARM

HARM, the high-speed, antiradiation missile is designed to destroy or suppress land- and sea-based radars supporting enemy defense systems. Both the Navy and Air Force will employ this missile.

The HARM missile homes in on radar signals associated with enemy surface-to-air missiles and radar-directed anitaircraft guns.

Our current inventory of anitradiation missiles consists of SHRIKE and STANDARD ARM which were used extensively in the Southeast Asia and Mideast wars and proved their utility in both conflicts.

However, the diversity of Soviet air defense systems today requires the capability that only HARM can provide.

IIR MAVERICK

The Navy-Marine Corps imaging infrared MAVERICK (AGM-65F), is an air-launched standoff weapon for day or night use against land and especially ship targets.

IIR Maverick is the only weapon which fully complements our large investment in aircraft TRAM and FLIR targeting systems.

The Seeker is imaging infrared, similar to the Air Force IIR Maverick, but is optimized for use against ships. The warhead is a prenetration-blast fragmentation-type with a selectable time-delay fuze and is the same warhead used in LASER MAVERICK.

This missile will be employed from the A-7, F/A-18 and A-6 aircraft. Fiscal year 1985 will represent the initial procurement of this missile.

Finally, Mr. Chairman, I would like to address one other weapon in the "Other Procurement—Navy," portion of this year's budget request.

The Navy's 5-inch semiactive laser guided projectile is a rocket assisted terminally guided high explosive munition which will be fired from the 5" MK-45 gun mounts aboard the DD-963, DDG-993, and DDG-51 class ships.

The terminal guidance capability virtually eliminates gun system inaccuracies and provides a first round hit capability against point targets. The projectile accepts laser guidance from the modular universal laser equipment [MULE], ground laser locator designator [GLLD] and OV-10D aircraft.

In fiscal year 1984 the $45 million request will procure tooling and test equipment for initial rate production of 100 rounds per month, as well as test assemblies and support for production verification tests.

In summary, I have highlighted just a few of the weapons procured and fielded for use by the Navy. The fiscal year 1984 request represents a large investment by any standard. It is, however, the minimum necessary to insure that our Navy is ready in the future to counter the threat—to conduct prompt and sustained combat actions at sea that is our charter.

Mr. Chairman, that concludes my statement. I will be happy to answer any questions.

[The statement of Admiral Nyquist follows:]

PREPARED STATEMENT OF REAR ADMIRAL J. W. NYQUIST, USN

DIRECTOR, SURFACE COMBATANT SYSTEMS

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Mr. Chairman and members of the Subcommittee:

I am Rear Admiral John W. Nyquist, Director, Surface Combatant Systems Division, Office of the Chief of Naval Operations. It is my privilege to present the munitions requirements for the U.S. Navy contained in the Weapons Procurement, Navy, Appropriation fiscal year 1984 Budget Request.

It is important to recall that the mission of the Navy, as set forth in Title 10, U.S. Code, is to be prepared to conduct prompt and sustained combat operations at sea in support of national interests.

The basis of this year's budget request is to support the Navy's weapons requirements for carrying out that mission. This budget request contains the Navy's best estimate of the cost and mix of those weapons.

The Weapons Procurement, Navy appropriations is composed of four budget activities. Activity One includes procurement of ballistic missiles and navigation satellite systems. Activity Two includes other missiles such as air, surface and subsurface launched missiles, communication satellites and aerial targets. Activity Three includes torpedoes, mines and subsurface training targets. Activity Four includes naval guns and associated support equipment.

I would now like to touch briefly on those weapons of specific interest to this committee.

TOMAHAWK

Mr. Chairman, I would like to address the concerns of this committee and those of the Senate Armed Services regarding the TOMAHAWK program. The program was restructured early this year to correct problems in flight testing and production quality control. A comprehensive correction plan is now in place to ensure a smooth transition to full rate production. Following the restructuring of the program, production of the TLAM/C missile was interrupted in order to develop an improved variant with a terminal dive maneuver and unitary warhead. Another equally essential variant will carry a submunition warhead, enabling multiple target kills against high priority area targets. TOMAHAWK TLAM/C is fundamental to the future maritime strategy of the United States. It will provide unmistakably clear evidence of our offensive capability. We urge your support of this vital program.

For fiscal year 1984, a total of $372.8 million is requested to fund the procurement of 124 TOMAHAWK missiles and provide advance procurement of long lead time materials in support of fiscal year 1985 procurements.

The House Armed Services Committee has fully supported this request. The Senate has recommended a reduction of thirty-six missiles and $106.2 million from the submitted budget. The reasons associated with this reduction include a recommendation to return to amoritized funding for tooling and test equipment, and a concern that the Navy has not adequately planned for the employment of the Nuclear Land Attack version aboard surface ships.

In the FY-84 President's Budget, the projected hardware costs were reduced and flyaway costs were increased to include full funding of tooling and test equipment. Navy and Air Force had spread $252.0 million over the life of the program for amortized tooling and test equipment. ($201.6 Navy and $50.4 Air Force.) OSD Comptroller conducted a present value analysis and opted to fully fund that requirement at $160.2 million ($128.0 million Navy, $32.2 million Air Force), reducing the total Air Force and Navy budgets by -$91.8 million. (-73.6 million Navy; $-18.2 million Air Force.)

The majority of this funding fell in 1984; the $91.8 million reduction was taken in the outyears. The Senate position would reduce the WPN funding back to the amortization level and force amortization costs back into the outyears, causing a net increase in flyaway unit cost. A cost increase to the TOMAHAWK program of over $140 million across FY-85 through FY-88 would result.

The Navy does in fact have an employment strategy for TLAM-N as well as TLAM-C aboard surface combatants. It is no different than the proposed submarine employment plan. The comprehensive report requested by the Senate Armed Services Committee is in staffing and will be provided.

The early problems experienced in this program, though not completely solved, are well in hand. Since restructuring, seven of nine TOMAHAWK test firings have been successful, including the last six in a row.

As with TLAM/C, the nuclear variant of TOMAHAWK is essential. Deployed in widely dispersed, highly mobile and sustainable surface combatants and submarines, it is visible evidence of a significant offensive capability. TOMAHAWK complicates Soviet targeting efforts, and their ability to concentrate force against us. It is a force multiplier. TOMAHAWK provides a crucial underpinning to the warfighting capability of the 600 ship Navy, and its ability to carry out its missions.

In summary, I thank you for your support in allowing the Navy to reprogram the FY-83 funds necessary to continue the restructured program and I ask for your continuing support of this vital program.

HARM

HARM is a high speed, anti-radiation missile designed to destroy or suppress land or sea-based radars supporting enemy air defense systems. HARM performs this function by homing on the radar signals associated with enemy surface-to-air missiles and radar directed anti-aircraft guns. Our current inventory of anti-radiation missiles consists of SHRIKE and STANDARD ARM, which were used extensively in the Southeast Asia and Mideast wars and proved their utility in both conflicts. However, the diversity of Soviet air defense systems today requires the capability that only HARM can provide. HARM will be deployed on the A-7E, F/A-18 and A-6E aircraft.

HARM provides the major ingredient in the Navy's lethal defense suppression capability for the conduct of tactical air missions. In fiscal year 1984, 230 missiles at $192.9 million is requested.

SPARROW

The AIM/RIM-7M SPARROW III is a semi-active medium range intercept missile and will be employed by Navy F-4, F-14 and F/A-18 fighter aircraft and surface ships having the NATO SEA SPARROW system.

The entire fiscal year 1984 request is for the 7M monopulse variant of the SPARROW missile and will include the fourth year of production of the RIM-7M missile for sea-launched application in surface ships. The AIM-7M and RIM-7M missiles are nearly identical except for the folding wings, clipped fins and remote arming capability of the RIM-7M surface-to-air missile. The AIM-7M is compatible with all aircraft currently approved to carry the AIM-7F air-to-air missile, and the RIM-7M will be employed with the NATO SEASPARROW Surface Missile System.

The 7M variant of the SPARROW missile incorporates a new low altitude capable active fuze, and a new target seeker featuring improved missile guidance performance in electronic countermeasures and clutter environments. Performance limitations in these areas were inherent in the AIM-7F conical scan seeker de-

sign. The 7M uses the same airframe, warhead, and rocket motor as its predecessor, the AIM-7F. We expect the 7M to be fully operational in the face of known self-screening electronic countermeasures, and provide improved capability in o ther ECM environments.

We are requesting $153.7 million for 374 AIM-7M and 321 RIM-7M missiles in fiscal year 1984.

SIDEWINDER

The SIDEWINDER AIM-9M is the latest version in the series of infrared seeking short range air-to-air missiles and is used on Navy and Marine Corps fighters and some light attack aircraft. Initial Operational Capability was achieved for the AIM-9M in September 1982, as scheduled.

The AIM-9M has improved infrared countermeasure capability and a significant improvement in its ability to acquire a target against a strong infrared background such as a hot desert. In other areas of performance and reliability the AIM-9M retains the same capability as the highly successful all aspect AIM-9L. The AIM-9M electronics have been repackaged to use more modern manufacturing methods and to facilitate repair.

We are requesting $29.6M million for 350 AIM-9M missiles in fiscal year 1984.

IIR MAVERICK

The USN/USMC Imaging Infrared MAVERICK (AGM-65F) is an air-launched, standoff weapon for day or night use against land and especially ship targets. IIR MAVERICK is the only weapon which fully complements our large investment in aircraft TRAM and FLIR targeting systems. The seeker is imaging infrared, similar to the Air Force IIR MAVERICK but is optimized for use against ships. The warhead is a penetration-blast-fragmentation type with a selectable time-delay fuze and is the same warhead used in LASER MAVERICK (300 lbs vs USAF 125 lbs). This missile will be employed from the A-7, F/A-18 and A-6 aircraft. Fiscal year 1985 will represent the initial procurement of this missile.

5" SAL GP

The Navy's 5" Semi-Active Laser Guided Projectile is a rocket assisted, terminally guided, high explosive munition, fired from the 5" MK-45 gun mount installed on DD-963, DDG-993, and DDG-51 class ships. The terminal guidance capability virtually eliminates gun system inaccuracies and provides a first round hit capability against point targets. The projectile accepts laser guidance from the Modular Universal Laser Equipment (MULE), Ground Laser Locator Designator (GLLD) and OV-10D aircraft. In FY 1984 the $45.0 million request will procure tooling and test equipment for initial rate production (100 rounds per month), test assemblies and conducts production verification tests.

In summary, I have highlighted just a few of the weapons procured and fielded for use by the Navy. The fiscal year 1984 request represents a large investment by any standard. It is, however, the minimum necessary to ensure that our Navy is ready in the future to counter the threat -- to conduct prompt and sustained combat actions at sea that is our charter.

This concludes my statement. I will be happy to answer any questions you may have.

REAR ADMIRAL JOHN W. NYQUIST, U.S. NAVY

Rear Admiral John W. NYQUIST, son of the late Rear Admiral Walfrid NYQUIST, USN (Retired) and Irma Beske NYQUIST, was born in San Diego, California. He entered the United States Naval Academy in 1951 after a year at the University of Minnesota.

Following graduation from the Naval Academy in 1955, Rear Admiral NYQUIST reported to USS OZBOURN (DD-846) and served in the Engineering Department. Other sea duty has included Executive Officer, USS PRIME (MSO-466), Weapons Officer, USS COCHRANE (DDG-21), Executive Officer, USS HORNE (DLG-30), Commanding Officer, USS SEMMES (DDG-18), and Commander Destroyer Squadron THIRTY-SIX. Rear Admiral NYQUIST also served in the Republic of Viet Nam with the Joint U.S. Public Affairs Office from 1968 to 1969.

Shore assignments have included Ordnance Engineering studies at the Naval Postgraduate School, Monterey, California and duty on the staffs of Commander Anti-Submarine Warfare Force, Pacific, the Bureau of Naval Personnel and two tours in the Office of the Chief of Naval Operations including duty as Executive Assistant to the Deputy Chief of Naval Operations (Surface Warfare).

Following his selection to flag rank in February 1981, Rear Admiral NYQUIST was ordered as Director, Command and Control Support Systems and Information Systems Division (May 1981 to September 1982). In September 1982, he assumed his second job in the Chief of Naval Operations as Director, Surface Combat Systems Division, which he is presently occupying.

Rear Admiral NYQUIST has been awarded the Legion of Merit with gold star, the Bronze Star, the Meritorious Service Medal, the Navy Commendation Medal with gold star and the Meritorious Unit Commendation. He is married to the former Penelope Ann Lyon of Menlo Park, California. The NYQUIST's have two children, Tom and Andrea, and reside in Alexandria, Virginia.

ATTACK EFFECTIVENESS OF TLAM/C

Senator STEVENS. Thank you very much.

The GAO alerted us to the terminal dive problem of the TLAM/C. About 55 percent of the $10.9 billion Tomahawk cruise missile program is a TLAM/C. You want $2.4 million in advance procurement for 1985.

It is my understanding that you have shifted to additional R&D following the GAO report.

Do you think you can clear up the problem that the GAO alerted us to in time to use funds for fiscal 1984?

Admiral HOSTETTLER. Mr. Chairman, the GAO report focused on the problem of the current TLAM/C base line. The problem that they focused to is the horizontal mode of attack which, while effective, is limited in the numbers of targets that can be attacked.

The GAO has suggested over a period of time that we develop a terminal mode of attack which we call a vertical dive maneuver in order to provide a better capability. That is exactly what we are doing in the restructured program.

The initial production of that missile which I call the block II A TLAM/C would be geared for 1985 the first year. The missile itself would not have any changes in hardware. The changes would be software only.

Those changes would be implemented in the missile software that is loaded into the missile prior to flight as well as into the mission planning system.

Therefore, we would have little or no trouble making a block II A out of the current baseline. It is simply a matter of reloading the software at the time of shoot.

Senator STEVENS. We understand that is $2.7 million for each one of these missiles and Secretary Lehman himself has restricted production now to four to six missiles a month until satisfactory test results are achieved on a series of issues.

Yet with this production restriction in place now of 72 per year we have a request for $350.1 million for 124 missiles in 1984 and long-lead time procurement for 353 missiles in 1985.

Again, it appears that you have the same problem that the Air Force has of seeking to obtain funding for procurement ahead of satisfactory results.

Isn't that correct?

Admiral HOSTETTLER. Mr. Chairman, there is no procurement money in fiscal year 1984 for the TLAM/C. We are asking for a long lead, of course, for 1985.

Senator STEVENS. $350 million is not for 124 missiles?

Admiral HOSTETTLER. Yes, sir, but no TLAM/C's are in that mix. Of the 124 missiles we are asking for in fiscal year 1984, 112 are of the nuclear variant and 12 are of the antiship variant.

We deliberately held off on the TLAM/C until the 1985 buy.

Senator STEVENS. Secretary Lehman is limiting the production of all of them?

Admiral HOSTETTLER. At the present time, sir, as a result of a memorandum in November the Secretary of the Navy in fact put a cap on my program of four to six missiles per month until such time as the Chief of Naval Materiel and myself could come back and show him by nature of positive test results as well as appropriate audits of our production community that we were able to recommend a higher production rate, sir.

MISSILE PRODUCTION LIMITATIONS

Senator STEVENS. Let me make sure I understand this. We have a March 24 memo which says that the production limitation of four to six missiles per month is to be kept in place until the Department is satisfied with the results of the corrective action taken pertinent to the Clark report of 1982.

It is our understanding that that shifts the production phase into 1985. You know, this is the testing phase in the first quarter of 1985.

If that is the case, why should we ask for money? They say they are not going to lift the four to six missile restriction until you complete these tests and yet the actions are scheduled to go into 1985 and we are asked for money now to fund 124 missiles, not 72.

The maximum you could get under this four to six limitation would be 72.

Furthermore, you want long-lead procurement for almost three times that many in 1985.

Admiral HOSTETTLER. I understand the question, sir.

First, may I address the memo from the Secretary which you referenced. This was a November memorandum which was referenced later in the March time frame. It was my intention, sir, at the beginning of the restructured program to come back to the Secretary of the Navy in the summer of this year and be able to tell him that we were in a position to increase our production rates.

Senator STEVENS. How can you increase production until the tests have been completed and they are not scheduled until the first quarter of 1985?

Admiral HOSTETTLER. Sir, the T&E that was involved in the Clark report recommendation, sir, had to do with the generic

Tomahawk program. It was not geared to the block 2 nor was that the intent.

The intent was to square away the program. When I came aboard I got my marching orders and the orders were: Get on with it, get you production going. I want missiles and I want T&E missiles to prove it.

I am pleased to state that I signed a letter a week ago Friday to the Secretary of the Navy. That letter will go through the chain of command, the Chief of Navy Materiel and Chief of Naval Operations requesting permission at this time to increase my production rate from the current four to six per month cap of all Variants to that required to meet contractual requirements.

I believe that I have been able to show the Secretary that we have had a significant improvement in our production capability relative to product assurance and reliability.

Secondly, I believe that the T&E results of this year have been very satisfactory. I have no reason to believe that he would not give me positive judgment on my recommendation to continue a proper rate production which will meet my contractual requirements, sir.

It was not hooked at all to the block 2 which was the point at that time. Clearly we will not go into production of the block 2 missiles until such time as we have demonstrated that capability in the test program.

Senator STEVENS. That is fine.

We would like to have a copy of that letter and the justification that backs it up.

I don't understand your contractual obligations as it affects this missile series.

Is that an implication that the contract that the Department has entered into obligates the Navy to purchase more than six missiles a month prior to the final evaluation of the terminal maneuver program?

Admiral HOSTETTLER. The only obligation I spoke to, Senator, was in fact the obligation that resulted from the authorization of the Congress in prior years. We are talking basically 1982 procurement missiles which are, of course, not block 2 missiles at all.

These are my TLAM/N TASM and GLCM Air Force ground-launched Variants That I am talking to.

Senator STEVENS. We will look forward to receiving those documents, Admiral.

[The information follows:]

JOINT CRUISE MISSILES PROJECT OFFICE
WASHINGTON, D.C. 20363

IN REPLY REFER TO
00/442
22 July 1983

From: Director, Joint Cruise Missiles Project
To: Secretary of Navy
Via: Chief of Naval Operations
Chief of Naval Material

Subj: Increase to TOMAHAWK Missile Production Rate

Ref: (a) SECNAV Memorandum of 12 Nov 83
(b) PRAT Report dated 19 April 83
(c) PRAT Report Draft dated 15 June 83

Encl: (1) Table 1 TOMAHAWK Missile Flight Test Status
(2) Table 2 TOMAHAWK Missile Additional Production Reviews
(3) Table 3 TOMAHAWK Missile Near Term Contractual Delivery Rates

1. In reference (a) you directed that a ceiling be imposed on TOMAHAWK missile production rate. This four to six per month rate restriction was necessitated by the extant production and quality problems at the primary TOMAHAWK manufacturers. In a 1 September letter from the Chief of Naval Material, I was directed to resolve the systemic problem areas which reflected the findings contained in the RADM Glenwood Clark Study completed in August of 1982. As reported to you in November, the root causes of these problems were:

a. lack of a firm technical baseline

b. inadequate product assurance

c. management difficulty resulting from aggressive break-out strategy

d. organizational shortcomings.

2. During this same briefing I described the restructured TOMAHAWK program, the recertification plan and the revised flight test schedule. I also presented my assessment of the then current production capability and my specific objectives and actions which would lead to full rate production. Mr. Secretary, some minor adjustments were necessitated in the last eight month effort, but all major objectives have been met. As you stated in your 12 November letter, the imposed restriction would remain until CNO and ASN (RE&S) reviewed satisfactory test results and CHNAVMAT was satisfied with the results of the corrective actions which were pertinent to the "Clark Report". The progress toward quality rate production has been challenging but steady. Results achieved have been the product of an ever improving government-industry team which portends even more rapid progress in the months ahead.

3. Realignment of the JCMP staff occurred in December 1982 coupled to specific corrective action plans at the two major contractors. Both manufacturers instituted a series of management personnel changes, improvements in facilities, revised production processes and increased emphasis on manufacturing related quality and testing. In December of 1982, an in-depth formal review by a team led by me was able to recommend lifting of the Method "D" (Quality Assurance) Corrective Action at General Dynamics/Convair based on progress to that date. By February 1983, the final reorganization of the JCMPO was completed, and specific technical actions had been instituted to insure that the various cruise missile production baselines were frozen and incorporated the latest production configuration. To date this population of missiles has resulted in 10 successful flight tests out of 12 tests flown (Table 1) since recertification in November 1982. It may be appropriate to note that we have had seven successes in a row.

4. In April 1983, the Chief of Naval Material chartered a formal team to investigate the production readiness status of both GD/C and MDAC and to coordinate and assist the formal Planning For Rate Review (PFRR) and other production reviews. This high level team included members of U. S. Industry, DOD, Navy Laboratories and the JCMP Technical Director. The CNM Production Readiness Assist Team (PRAT) conducted two major reviews, one at General Dynamics, Convair (GD/C) and one at McDonnell Douglas Astronautics (MDAC). These PRAT reviews were followed by nine additional reviews as outlined in Table 2. The findings of the PRAT Team were specific as documented in reference (b) and (c). The general findings and recommendations of the PRAT coupled with all follow-on reviews were presented to CHNAVMAT on 20 July 1983. The major findings were:

a. no major technical barriers exist to prohibit increased rate for the total missile system:

i. present capacity - 16/month

ii. increased capacity - 20/month at GD/C by Dec 83;

b. test equipment and special assembly areas continue to be principal choke points for increasing rate beyond 20/month;

c. land attack guidance set (CMGS) yields need improvement (Reference Measuring Unit and Computer (RMUC) is principal candidate):

i. RMUC - 49% yields should be increased to 70/85%

ii. CMGS - 85% yields should be increased to 90/95%; and,

d. management processes through use of primary support labs and System Engineering and Integration Agents linked to POA&Ms and contract incentives should continue to be effective in resolving problems.

5. I believe that your imposed missile production limit of 4 to 6 per month has achieved its intended effect. Each major contractor and their associated vendors have taken positive steps to improve production quality. This has been evidenced through a steady improvement in production yields of all missile components and flight test successes. The PRAT findings indicate that sufficient capacity exists to more than meet the current contractual delivery rates and further, that this rate can be increased without sacrifice in present quality. In light of these developments, I am asking CHNAVMAT, CNO and ASN (RE&S) to favorably endorse and forward to you for approval my request for increased production. Upon approval, production rate will be increased to a level equal to current contractual delivery rates (Table 3). I will continue a maximum effort to insure remaining PRAT/PFRR corrective actions are completed earliest. Your continued personal interest and strong support in this critically important project is deeply appreciated.

S. J. HOSTETTLER
Rear Admiral, U.S. Navy

TABLE I

TOMAHAWK MISSILE FLIGHT TEST STATUS

10 Successful flights/2 failures - since 5 November recertification

SLCM

3 December	sub launch	successful	TLAM(C)
6 March	DD launch	unsuccessful	TLAM(C)
14 April	sub launch	successful	TLAM(C)
16 April	sub launch	successful	TLAM(N)
10 May	BB launch	successful	TLAM(C)
3 June	sub launch	successful	TLAM(N)
27 June	sub launch	successful	TASM
18 July	sub launch	successful	TASM

GLCM

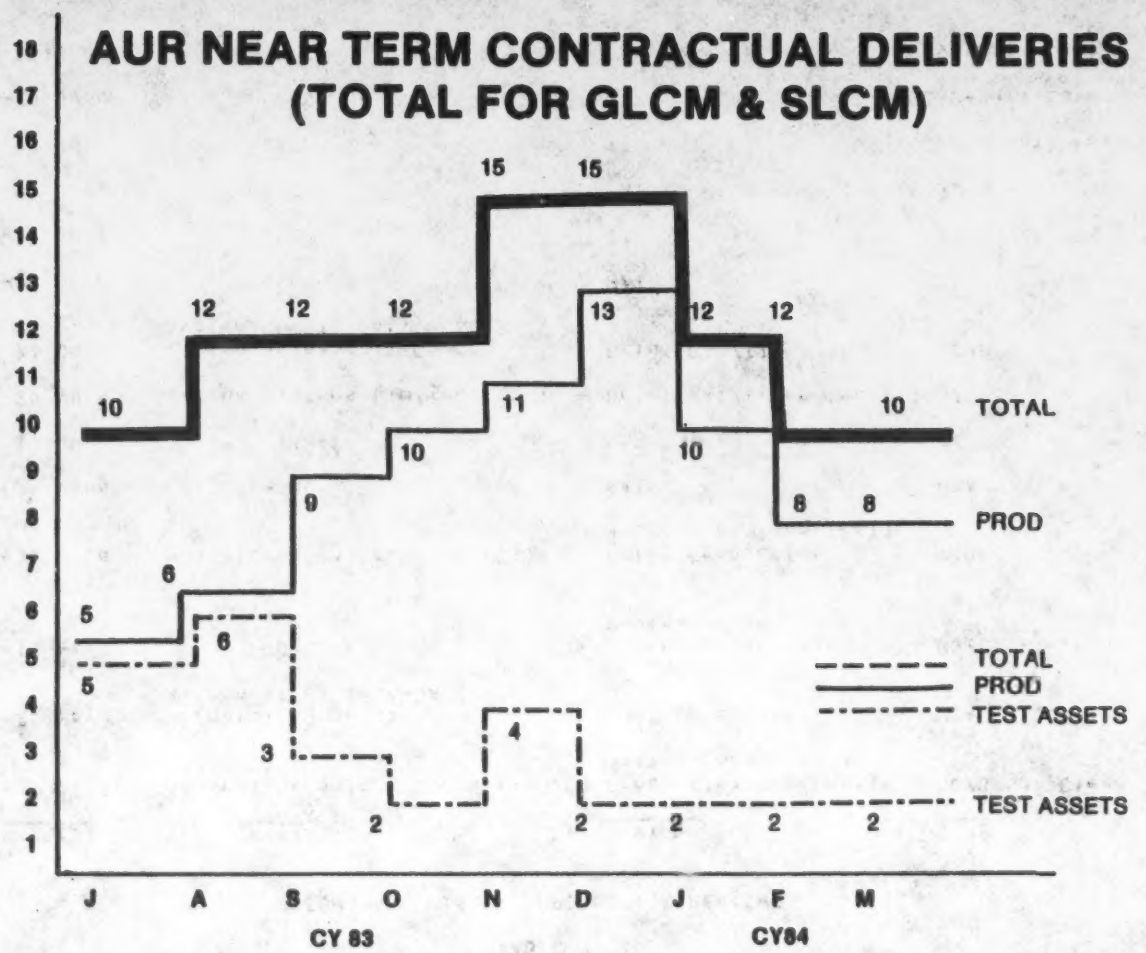
12 November	launch	successful
17 December	launch	unsuccessful
23 February	launch	successful
7 June	launch	successful

TABLE 2

TOMAHAWK MISSILE PRODUCTION REVIEWS

DATE(S)	CONTRACTOR	REVIEW	SITE
11-12 April	General Dynamics, Convair(GD/C)	Production Readiness Assist Team (PRAT)	GD/C San Diego
19-20 May	McDonnell Douglas Astronautics Co (MDAC)	PRAT	MDAC St Louis
13-19 May	GD/C	Planning for Rate Review (PFRR)	GD/C
9-10 June	MDAC/Texas Instruments (TI)	Brief Production Assessment Team (PAT)	JCMP
13-16 June	MDAC	PAT	MDAC
17 June	TI	PAT	TI
20 June	Litton Systems Limited (LSL)	Brief PAT/Tiger Team(TT)	JCMP
21 June	Litton Guidance & Control Systems Division (LGCSD)	Brief PAT/TT	JCMP
22-24 June	LSL	PAT	LSL
22-24 June	LSL	TT	LSL
27 June	LGCSD	PAT	LGCSD-Grants Pass
27 June	LGCSD	TT	LGCSD-Grants Pass
28-30 June	LGCSD	PAT	LGCSD-Salt Lake
28-30 June	LGCSD	TT	LGCSD-Salt Lake

AUR NEAR TERM CONTRACTUAL DELIVERIES (TOTAL FOR GLCM & SLCM)



TRIDENT PROGRAM

Senator STEVENS. On the Trident program I am told the House Appropriations Committee has looked into the F-18 management practices.

Could you tell this committee, Admiral, how it is that out of $1.2 billion provided for advanced procurement of Trident I through 1983, $336 million remains to be applied to the 1985 and beyond programs when 1984 was supposed to be the last year of production?

Admiral NYQUIST. Mr. Chairman, I would like to take that for the record and get an answer back to you.

Senator STEVENS. All right.

[The information follows:]

TRIDENT PROGRAM FINANCIAL MANAGEMENT

While fiscal year 1984 is the final year of Trident I missile procurement several subcomponents (i.e. MK4 reentry body shells and the arming, fuzing and firing system) continue to be procured through fiscal year 1986. In addition procurement of Special Purpose Test Instrumentation used in the ongoing Demonstration and Shakedown Operations (DASOs) and Follow-on Operational Tests (FOTS) flight test programs continues through the life of the Trident I Program. the $336 million referred to provide for the advance procurement of critical components which are held in storage and provided to the contractors as work in process materials during the production of the aforementioned missile subassemblies and also for all critical components in support of missile, reentry system, guidance system, and test instrumentation spare and repair parts requirements throughout the operational life of the Trident I (C-4) missile.

LIFETIME TOTAL SYSTEM SUPPORT

Senator STEVENS. Let me ask it another way.

Of the 336 million, $248 million is budgeted for "lifetime total system support" and $218.6 million for the years beyond 1989.

Why should we be budgeting now for lifetime total system support and for the years beyond 1989? Are you aware of that?

Admiral NYQUIST. I should be, but I am going to have to get a full answer for the record.

Senator STEVENS. I would like to ask you to give us a report as to how much of that $248 million could be deobligated.

It would seem to me that with the budget restraints we have on us now if we start earmarking dollars for beyond 1989, we are going to miss some things right now that have higher priority and should be funded now.

Admiral NYQUIST. Yes, sir. I will get that answer back to you.

[The information follows:]

TRIDENT PROGRAM FINANCIAL MANAGEMENT

We are budgeting now for lifetime total system support procurement requirements as part of the C-4 Production Continuity Program. The genesis of Production Continuity is a result of the Poseidon reliability program investigations and the lessons learned from Poseidon where failures were traced to the quality of production hardware rather than the design from the development program. The concept was previously used to a great extent on Poseidon MK-3 reentry body components with proven success. The critical component materials included in the Trident I Production Continuity Program must be produced at given, uninterrupted rates on production lines or by life-of-type or one-time procurements of the quantity of a material or component to support the total planned program (e.g., critical components used for spare and repair parts production for the life of the C-4 program). The quality

and homogeneity obtained by this means are essential to assure consistent reliability of all Trident I missiles throughout their operational life. An unavoidable consequence of this procurement method is that these materials must be budgeted for and procured in advance of actual program requirements.

Concerning the deobligation of the $248 million, the current Trident I Advance Procurement allocations already reflect reduced funding requirements based on contract terminations associated with reduced Trident I (C-4) missile inventory objectives. Therefore no additional funds can be deobligated with adversely impacting program requirements.

HARM SECOND SOURCE

Senator STEVENS. On Harm we did have a hearing here and as you probably know, Secretary DeLauer and Secretary Thayer were before the committee. There is a dispute in the Department, as I understand it.

The Navy seeks to go ahead with second source on Harm. The Department indicated that they thought it was just too expensive.

Does the Navy think that second source for the Harm would bring down the program cost?

Admiral NYQUIST. Mr. Chairman, I would like to preface this by saying that, as you know, there is a good solid debate going on on that subject. I understand that GAO is also helping to look at that. I believe that is the Navy's position.

However, again, as I say, that is under active study. I would like Capt. Larry Kaufman to give you a bird's eye view on this question.

Senator STEVENS. I would appreciate it, Captain. We have a request now to start preplanned product improvement program, a joint Navy-Air Force effort. We have $80 million earmarked for the second source production.

Yet it appears to us, and the GAO tells us, you won't be ready until 1990. It appears to us that the new seeker for that missile program won't be ready until 1990.

What should we do? It seems to me that we ought to be guided by the Departmental judgment on this.

Is the Navy still going to seek Harm money in spite of the Department's position?

Captain KAUFMAN. Mr. Chairman, through the DSARC process the Navy's position at the time through an extensive study is that we anticipate saving $80 million through the life of the program if we went second source.

OSD disagreed with us and directed us to go single source. The $11.8 million in the 1984 RDT&E is not all for preplanned product improvement. It is in a Harm improvement line, the majority of which would be to correct some deficiencies uncovered in 1 year of testing.

Additional dollars there are to work on efforts to reduce the cost of the total Harm system. The $11.8 million is not totally committed to the preplanned product improvement.

Senator STEVENS. What happened to the $80 million?

Captain KAUFMAN. The $80 million is still fenced and the Service is in the process of coming up with reprograming action to change that money to RDT&E on the seeker and applying additional dollars to buy more missiles.

BIGEYE

Senator STEVENS. Let me change to the Bigeye binary spray bombs. OSD decided to delay production of that bomb and has told the Armed Services Committee that there was no need for $43.2 million in production funds. However, OSD requested $26.1 billion for production facilities previously scheduled for the fiscal year 1983 reprograming and a $4.7 billion increase for Bigeye R&D.

Can you tell the committee how the $4.7 billion for the bigeye R&D will be used?

Admiral NYQUIST. Mr. Chairman, I heard you at the beginning talk about your desire to discuss Bigeye. I am not prepared to discuss it and I will be happy to take your questions for the record.

I did not prepare nor am I familiar with the Bigeye program. I will certainly get you answers to any questions you may have on this.

Senator STEVENS. I would appreciate it if you would. We do not have a budget amendment to implement that major program change. We have no justification.

I believe in view of the amount of money available already that $4.7 million ought to be in some way absorbed through reprograming from the 1983 funds. That will be a difficult program to handle by this Committee with the amount of information that we have available so far.

My specific request to you is for a budget justification and that you examine the possibility of reprograming to cover that $4.7 million.

Admiral NYQUIST. Yes, sir.

[The information follows:]

BIGEYE

Technical problems identified through scheduled testing dictated a restructered R&D program to incorporate "offstation" mixing. The $4.7 million increase in Bigeye R&D will support additional test hardware (weapons, fuzes, etc.), additional flight test, range support and increased engineering support.

NAVY SPACE COMMAND

Senator STEVENS. On the Navy's space command. The Air Force set up a space command and now we are told that the Navy's Space Command will be established on October 1 at Dahlgren, Va.

I was under the impression that this would be a unified operation when we first heard about it. Is there a necessity for the Navy to have a separate space command?

I don't think you can take the battleships out into space, can you, Admiral?

Admiral NYQUIST. As you know, Mr. Chairman, the Navy is one of the principal users of space in the Defense Department. Again, I feel that I am not prepared to talk about the Navy's Space Command in detail.

I have seen those parts of it that come before me in my job, and, yes, the Navy's position is that we need a space command.

I don't think it is going to be at odds with any other Services.

Senator STEVENS. This committee is inclined to direct that if the Navy wants to be involved, that the Navy unify its operation with

the Air Force. We are concerned that the creation of a new space command will involve a substational cost not only in terms of dollars, but in terms of personnel.

We would like to know how many new officers will be required for this command and how many total personnel. We would like to see some cost detail which we have not received for that space command including not only the personnel, but other support costs.

Again, I understand that these items come at you without any advanced warning. I would appreciate it if we could have that for the record. It does seem to go contrary to the concept that we were trying to have some unification as far as the space effort is concerned for the Department of Defense.

[The information follows:]

NAVAL SPACE COMMAND

Personnel for the Naval Space Command will include: 25 Officers, 3 Enlisted, and 32 Civilians. The officers and enlisted assigned will not increase Naval manpower end strength.

5-INCH SALGP

Senator STEVENS. Let me turn lastly to the laser guided projectile, SALGP.

We have a reprograming request for $35 million and an 1984 request for $45 million, both to get the tooling and preliminary work started on this semiactive laser guided projectile.

Is that technology along to the point where we can make production commitment?

Admiral NYQUIST. Absolutely, Mr. Chairman. In fact, I would volunteer at your convenience to show you a short film of that technology in being. The system has been developed. It is everything that we say it is.

Senator STEVENS. It was not even budgeted in 1983 and yet it seems to be ready to burgeon on in 1984 at a fairly good budget estimate.

Admiral NYQUIST. Yes, sir.

Senator STEVENS. Have you had test results on that?

Admiral NYQUIST. Yes, we do, sir. That went through R&D a number of years ago. Not too many years ago. We will be happy to provide you with the results.

Senator STEVENS. We would like to know, was that tested under realistic battle conditions as we indicated in the other?

Should we have the GAO look at this one, too?

What about bad weather, obscure targets, battlefield conditions?

It seems that we are rushing to production. I don't understand why on all these missiles we are rushing to production ahead of testing.

Admiral NYQUIST. I would want to assure you, Mr. Chairman, that I don't think this is a rush to production. As in any laser guided system, you have to have reasonable visibility, but as it was in the Air Force program, this has been tested ashore in the dust and smoke, a simulated battlefield.

It has been fired at sea where the atmospheric conditions are much more favorable, but it has been tested ashore and it does work as well as any round that can be spotted by a spotter.

Senator STEVENS. Correct me if I am wrong. Isn't this one of the items that the Navy sort of gave up in the budget crunch of 1982 that you said this was one of the lower priority items and it was canceled out?

Wasn't it started once and then stopped?

Admiral NYQUIST. I will check my facts, Mr. Chairman, but I think the Navy started it and somewhere along the line it got stopped. I don't think the Navy has ever voluntarily stepped back from SALGP.

But again, I will be happy to provide you that for the record.

[The information follows:]

5 INCH SALGP

Navy reevaluated production planning when results of a preproduction audit showed that facilitization costs had been underestimated. The cost growth was a direct consequence of little actual commonality between Navy's GP and Army's COPPERHEAD. The procurement program was cancelled before a production decision was made.

MARINE CORPS SUPPORT FOR PROGRAM

Senator STEVENS. We are told the Secretary of the Navy stopped it for affordability reasons. It seems that the driving need for it is the new DDG–51 destroyer.

Is that correct?

Admiral NYQUIST. You are correct that the Secretary did stop it for affordability reasons. Since then, through the Secretary, we have gone on to what we believe will be a good business strategy. Certainly the DDG–51 is going to be a prime candidate, but so are the DDG–963 and DD–993 already in commission.

We have the four square support of the Marine Corps for this program. We feel that between the battleships with their 16-inch guns and SALGP we are a long way ahead in getting on with our fire support requirements for the Marines.

Senator STEVENS. My staff tells me that this was a decision that was in the 1983 supplemental for proposed SALGP and for Sea Fire. It has been restarted in the 1984 authorization by congressional directive.

Isn't the Sea Fire system still in its preliminary stage?

Admiral NYQUIST. It is in the process of being put out to industry under a request for proposal. The Sea Fire system is to be based on current state of the art technology so that we are not going out looking for anything that will give us problems in development.

Yes, sir, you are absolutely right, we did interrupt the Sea Fire and SALGP programs. Those are very important programs to the Navy, both from the standpoint of fire support and in Sea Fire we get an electro optic system that we know is going to be useful to us in heavy ECM environments when we turn off our radars.

COPPERHEAD TERMINATION IMPACT

Senator STEVENS. The Congress has terminated, probably won't revive, the Copperhead program for the Army. That is laser guided artillery shell for the Army.

What is that going to do to the cost for the SALGP as far as the Navy is concerned? I understand that is the same contract.

Admiral NYQUIST. We don't believe it will affect costs, Mr. Chairman, because we have assurances from the prime contractor that he can produce the guided projectile at a cost that we will be able to live with and will not be affected by the Copperhead program.

Senator STEVENS. Has this been approved for multi-year contracting?

Admiral NYQUIST. No, sir. Let me correct that.

As we go toward a contract it will be for the full number of rounds.

I would like to provide you for the record a little more of the business detail that goes into that, but there would be options along the way so that the Government would always be in a strong position.

[The information follows:]

5-INCH SALGP

No, sir, it has not yet been approved. Navy's acquisition strategy specifies that the first two production lots—the first a low rate initial run and the second a ramp to full production capacity—will be under separate contracts which will incorporate a unit cost cap of $44,000 (fiscal year 1981 $). The remainder of inventory, [deleted] are planned for a multi-year contract. Requests for multi-year contract authority would be submitted with the fiscal year 1987 budget.

Senator STEVENS. I am told that the $80 million—incidentally I made an error, that would be the 1982 supplemental, not the 1983—the $80 million in 1983 and 1984 will buy 59 rounds.

Is that right?

Admiral NYQUIST. Of the SALGP, Mr. Chairman?

Senator STEVENS. The SALGP. Is that right?

Admiral NYQUIST. Let me get that answer for you.

[The information follows:]

5-INCH SALGP

The SALGP pre-production program for fiscal year 1983 and 1984 procures the necessary production tooling and test equipment to sustain full rate production. Fifty-nine test articles, or rounds, will be fabricated to verify the production engineering and procedures before a production run is initiated.

PROCEEDING WITH SALGP PROCUREMENT

Senator STEVENS. There is some money for tooling, testing and test equipment?

Admiral NYQUIST. Yes, sir.

Senator STEVENS. We don't see any programs beyond 1984 for SALGP. It is hard to understand this in view of the Copperhead, in view of the programing, where it phases in and where it phases out again.

Admiral NYQUIST. There is every intention of proceeding with SALGP procurement through the outyears.

Senator STEVENS. There is none in our record at all for 1985.

Admiral NYQUIST. As I think through it, it probably would not be because it is still in POM process. I will just have to get the information for you for the record, Mr. Chairman.

Senator STEVENS. Do you have an IOC for the 5-inch SALGP?

Admiral NYQUIST. I hesitate to tell you what I think it is because it depends on certain alterations that we have to make to our

ships. But about fiscal year 1987 in the DD–963's and, of course, it will be introduced in the DDG–51.

Again, I will make sure I get the exact date for the record.

Senator STEVENS. I would appreciate that.

[The information follows:]

5-INCH SALGP

Navy's IOC is [deleted]. The DD 963 class is being reconfigured to fire the SALGP.

LIGHTWEIGHT TORPEDOES

Senator STEVENS. I have a series of questions about lightweight torpedoes, about the mine programs, ASW standoff weapons, vertical launch ASROC and the FLS. They are all details really about responses that we have already received.

I would appreciate very much if you could answer those for the record, Admiral. We really do need the information about that TLAM/C as soon as we can get it.

HARM PRODUCT IMPROVEMENT

The House Armed Services Committee zeroed the HARM product improvement and recommended that $20 million be provided for the antiradiation projectile program to help develop a low cost seeker for HARM.

Has the Department decided whether it is going to appeal that action?

Admiral NYQUIST. Let me check with my expert.

Captain KAUFMAN. Sir, we are unclear if the $20 million is for the HARM program. We are in contact with the staff to determine what the $20 million is for.

Senator STEVENS. Gentlemen, I did not mention it to the generals, but I am constrained to mention it here so that the departmental people will pass it on.

We are going to have extreme difficulty again with two versions of this bill. It does not look like it will be out of conference in terms of the authorization bill before we start marking up our bill.

That is what led us to the confusion of the fiscal year 1982 bill. I am hopeful that we can find a way to get informed as to the appeals that the individual services take to either the House or Senate versions of the authorization bill so that we can have some understanding of what is liable to come out of the authorization conference.

I am not certain we will have an authorization conference before the end of the fiscal year. If that happens, if we don't get the authorization bill, we are going to be almost forced into the position of going into the continuing resolution which I feel we can demonstrate costs the taxpayers and Department of Defense substantial amounts of funds.

It is an inefficient way to do business not to handle the requests that come in the budget in the normal course because we deal then with a massive amount of reprograming, we deal with continuing funds for programs that even the Department wants to cease and shift over to other areas.

I would hope that we will be able to get a bill out before the end of the fiscal year, before the commencement of the new fiscal year.

SUBMITTED QUESTIONS

Thank you very much. I will appreciate your courtesy if you will respond to the questions we have so that we can prepare for our markup.

Admiral NYQUIST. Thank you, Mr. Chairman.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearings:]

ADDITIONAL COMMITTEE QUESTIONS

TOMAHAWK

QUESTION: What would be the impact of deferring your $2.4 million request for advance procurement for the conventional land attack missile guidance package?

ANSWER: The effect of deferring the request for guidance sets is twofold, schedule and economic. The advance procurement request is timed to meet the IOC established for the Tomahawk Conventional Land Attack BLK IIA (Vertical dive angle) missile. This IOC could not be met if the advance procurement is deferred.

The economic effect is as follows. The guidance set for the Navy conventional and nuclear missiles and the Air Force's Ground Launched version is identical. Deferral of funds for the conventional guidance sets would force a split buy, i.e. contractors are forced to procure long lead parts in two lots. This destroys any price advantages the Government enjoys by coordinating procurements and placing orders for all advance procurement requirements on one contract.

QUESTION: How many sets of long lead materials are you on contract for in 1984?

ANSWER: There are 124 sets of long lead material on order for delivery in FY 1984. This material supports the President's FY 1984 Budget request for 124 TOMAHAWK cruise missile.

QUESTION: This committee just approved a $39.5 million reprogramming for the TOMAHAWK program. However, the committee notes that the FY 84 budget request for TOMAHAWK R&D is $135.7 million, $109 million above last year's projection for the program. We have been unsuccessful at obtaining a break-out of the FY 84 R&D for TOMAHAWK from the Navy. Other than using $24.9 million on the TLAM-C, what specific tasks will be accomplished with this extra $109 million?

ANSWER: In addition to the $24.9 for development, integration and test of the TLAM-C terminal manuever and submunition dispenser, other specific tasks which will be accomplished with this extra $109M are as follows:

1. Improved Booster: Funds will be used for the development and test of the improved rocket motor (booster) which is applicable to all variants of TOMAHAWK. In addition to the development of the booster itself other related items such as cannisters, harnesses and software are also being developed. $8.6M are required for these developments.

2. Test and Evaluation: Three IOC's are scheduled during FY 84. In all, 17 RDT&E financed tests are scheduled to support Operational Evaluation prior to IOC and other mission essential testing. The Surface Ship TLAM-N Operational Evaluation including test firings, safety, and logistics will be completed in FY 84. TASM IOC will also be achieved in the Spring of 1984. $24.8M are required for these developments.

3. Surface Ship Program: The surface ship program will achieve two of the three IOC's scheduled for FY 84. Tasks to be

accomplished in support are full integration of the weapon system aboard test ships including integration of a new Navy communications system and completion of the development of the integration packages for incorporating the TOMAHAWK Weapon System into several classes of ship. $17.7M are required for these developments.

4. Correction of Deficiencies: Work will continue on improving the current missile baseline in such areas as reliability, Test-Analyze-and-Fix (TAAF), independent verification of software, and nuclear safety. $33.0M are required for these developments.

QUESTION: How much of the increase is specifically related to cost overruns on the part of the prime contractor.
ANSWER: None of the increase is specifically related to R&D cost overruns on the part of either of the prime contractors or associate contractors. However, it should be noted that those funds earmarked "Missile Baseline Recovery" are associated with the development of design improvements to greatly enhance Mission Reliability.

QUESTION: What will be the impact on the overall Tomahawk R&D program if the submunitions dispenser effort for TLAM-C were deferred in FY 84?
ANSWER: Deferral of the FY 84 submunition dispenser effort for the TLAM-C will impact total R&D program cost and submunition dispenser schedule. A portion of the recent FY 83 reprogramming for the Tomahawk program was utilized to initiate the engineering development phase in order to meet a FY 86 IOC. The FY 86 IOC was predicated on an estimated 30 month engineering and test program. Deferral of the FY 84 portion of this effort will increase cost due to the break in the planned program plus escalated costs in FY 87 and beyond. The deferral will also delay IOC until FY 87 or later, and deprive Navy of the critical area target kill capability that this TLAM variant furnishes.

QUESTION: Isn't it the terminal maneuver program, and not the submunitions dispenser effort, which paces the TLAM-C IOC?
ANSWER: Yes, the terminal maneuver program (Block IIA) leads to an IOC for TLAM-C with a unitary warhead. This IOC precedes the IOC for the submunition dispenser version of TLAM-C (Block IIB) by about 12 months. The development effort, including T&E, for these two versions are independent. By developing the mission planning requirements and modifications concurrently a certain amount of synergism would be experienced with a possible overall cost savings to the government. The submunition dispenser development program is hardware intensive whereas the terminal maneuver consists basically of software modifications. The test programs are entirely independent.

QUESTION: The Navy will use 8 Tomahawk cruise missiles obtained with procurement funds to test terminal maneuver fixes for the TLAM-C. Are eight tests enough to validate the TLAM-C terminal drive accuracy?
ANSWER: Yes. The contributing factors to errors associated with a land attack system, prior to a terminal manuver, are well known and have been validated by prior flight tests and simulation. Models are being developed that will define the

error budget associated with the terminal maneuver. Attempts will be made on each flight to validate the fidelity of the simulation models through the use of multiple vertical dive terminal maneuvers prior to the final impact maneuver. Only limited developmental flight testing is required. The majority of the flights (5) are dedicated to independent operational evaluation by COMOPTEVFOR.

TRIDENT PROGRAM FINANCIAL MANAGEMENT

The answers to questions 7 and 8 are provided in the insert on page 41 line 12.

The answers to questions 9 and 10 are provided in the insert on page 42 line 19.

QUESTION: The House Appropriations Committee has challenged some of the financial management practices in your F-18 program. I have some similar questions about your TRIDENT I program. Explain to me how it is that out of $1.2 billion provided for advance procurement of the TRIDENT I through 1983 some $336 million remains to be applied to the 1985 and beyond program years when 1984 is the last year of production?

ANSWER: While FY 1984 is the final year of TRIDENT I missile procurement several subcomponents (i.e., MK4 reentry body shells and the arming, fuzing and firing system) continue to be procured through FY 1986. In addition procurement of Special Purpose Test Instrumentation used in the ongoing Demonstration and Shakedown Operations (DASOs) and Follow-on Operational Tests (FOTs) flight test programs continues through the life of the TRIDENT I Program. The $336 million referred to provide for the advance procurement of critical components which are held in storage and provided to the contractors as work in process materials during the production of the aforementioned missile subassemblies and also for all critical components in support of missile, reentry system, guidance system, and test instrumentation spare and repair parts requirements throughout the operational life of the TRIDENT I (C-4) missile.

QUESTION: What does the Navy expect to receive in the way of services and hardware in the out years for this $336 million? How will they be used?

ANSWER: The $336 million referred to provide for the advance procurement of critical components which are held in storage and provided to the contractors as work in process materals during the production of the aforementioned missile subassemblies and also for all critical components in support of missile, reentry system, guidance system, and test instrumentation spare and repair parts requirements throughout the operational life of the TRIDENT I (C-4) missile.

QUESTION: Of the $336 million, $248 million is budgeted for "Lifetime Total System Support", $218.6 million for the years beyond 1989. Why can't these requirements be budgeted in the appropriate year?

ANSWER: These requirements were procured as part of the C-4 Production Continuity Program. The genesis of Production Continuity is a result of the POSEIDON reliability program investigations and the lessons learned from POSEIDON where failures were

traced to the quality of production hardware rather than the design from the development program. The concept was previously used to a great extent on POSEIDON MK-3 reentry body components with proven success. The critical component materials included in the TRIDENT I Production Continuity Program must be produced at given, uninterrupted rates on production lines or by life-of-type or one-time procurements of the quantity of a material or component to support the total planned program (e.g., critical components used for spare and repair parts production for the life of the C-4 program). The quality and homogeneity obtained by this means are essential to assure consistent reliability of all TRIDENT I missiles throughout their operational life. An unavoidable consequence of this procurement method is that these materials must be budgeted for and procured in advance of actual program requirements.

QUESTION: How much of this $248 million can be deobligated?
ANSWER: Current TRIDENT I Advance Procurement allocations already reflect reduced funding requirements based on contract terminations associated with reduced TRIDENT I (C-4) missile inventory objectives. Therefore no additional funds can be deobligated without adversely impacting program requirements.

QUESTION: Does the Navy have any excess materials advance procurement contracts that have not been applied to missile production? If so, why?
ANSWER: As a result of the decision to develop, produce and deploy the TRIDENT II (D-5) weapon system the TRIDENT I (C-4) missile inventory objective was reduced following the FY 1982 Budget Submission from 969 to 630. Subsequent program decisions involving deployment of D-5 missiles on new construction TRIDENT SSBNs and decreased TRIDENT I flight test requirements resulted in the further scaling down of the TRIDENT I inventory objective from 630 to the currently approved 570. While contract terminations were executed promptly following the decisions resulting in inventory objective reductions, cases do exist where production continuity materials were produced in excess of the current TRIDENT I program requirements. Efforts are being extended to maximize usage of these already procured materials by possible application to the follow on D-5 missile program. The extent to which this may be achieved is undetermined at this time pending completion of final design specifications of the D5 missile.

AGM-88A HARM

QUESTION: We would like to get the Navy on the record about the very expensive HARM program and the second production source issue in particular. We discussed this at a previous hearing with Under Secretary DeLauer, but we would like to hear the Navy's view, which I understand supports the second source approach. Can the Navy justify going to a second source on HARM on a cost basis?
ANSWER: Navy pricing of the total joint service program, incorporating information from the latest proposals of the current prime contractor and the potential second source contractors, indicates that the sole source program would cost about $6.12 billion. The dual source program would cost $5.27 billion, a savings of $850 million.

QUESTION: The Department's single source strategy is based on going to competitive procurement of a low cost seeker starting in 1986. But GAO tells us the new seeker will not be ready before 1990. Is that correct, in your judgement?

ANSWER: At the HARM DSARC, the Navy presented a dual source program with full competition for the current seeker in FY-86. The plan included inserting via Engineering Change Proposal a reduced cost antenna and receiver (no change in the video processor) with limited production in FY-87 and full production by FY-88. This change was considered low risk because both prime contractors would already be up on their learning curves producing the basic HARM, plus, the majority of Special Tooling and Test Equipment (estimated to be 90% common) would already be in place. With a single source producer of the current HARM design, COMNAVAIRSYSCOM now estimates the earliest a competitor could be in limited production with a new seeker would be in FY-89.

QUESTION: If low cost seeker production is that far off, how can it help now with the serious affordability problems with HARM?

ANSWER: With the single prime source strategy and planned buy out of the HARM program in FY-90, it does not appear that an investment payback can be achieved. COMNAVAIRSYSCOM is still refining the cost and schedule for the low cost seeker program.

QUESTION: Secretary Thayer has told the committee the current HARM program is just too expensive. I believe Secretary Lehman said much the same several months ago. If second sourcing the missile production is not cost effective, what else can be done to bring down program costs?

ANSWER: The Navy believes that second sourcing the missile will save about $850 million of what would otherwise be a $6.1 billion sole-source program. In addition, the Navy has taken initiatives to institute an extensive vendor second sourcing program; has solicited and is now negotiating a three year firm fixed price proposal (base year plus not to exceed options for the two subsequent years) from the current prime; is pursuing cost reducing engineering changes; has established a product improvement program that will, in part, address cost reduction; and has instituted a manufacturing technology program at the present prime contractor that is already showing a substantial return on investment. At the HARM DSARC, Navy estimated that introduction of the lower cost seeker technology into the ongoing dual source competition would save up to an additional $400M over the total program.

QUESTION: This committee did not agree to the Department's request to use some of the HARM second source funding appropriated last year to begin work on a low cost seeker. We said the second source production options should be kept open. What has been happening exactly? What is the status of the $80 million earmarked for second source development?

ANSWER: The $80 million is being held intact until specific disposition direction is received. Navy and Air Force are currently processing a reprogramming request for authority to use the $80 million in execution of the SECDEF directed acquisition strategy. The FY 83 and 84 contracts with the current prime contractor are being negotiated with option ranges that can be executed with or without the $80 million. All three potential second source contractors have unilaterally extended their proposals incrementally as

debate on the acquisition strategy continued. To date, all the strategy options are still open.

QUESTION: The Navy is requesting $11.8 million in FY 84 to start a HARM pre-planned product improvement program, which will be a joint Navy/Air Force effort. What is the principal thrust of the program, unit cost reduction for HARM, or growth against future threats?

ANSWER: The principal thrust of the product improvement program is correction of the minor deficiencies noted in operational testing along with unit cost reduction. Because HARM has completed OPEVAL, all RDT&E funding for both deficiency corrections and pre-planned product improvement were put into PE 25601 HARM Improvement.

QUESTION: What is the total estimated cost of the joint Navy/Air Force HARM product improvement program?

ANSWER: A total of $26.5 million is budgeted in FY-84 and 85, $16.7 million by Navy and $9.8 million by Air Force. About $12 million of this total will be used to correct technical deficiencies identified during operational testing. While none of these deficiencies was serious enough to affect the decision to continue production of HARM, the services are required to correct them. The remaining $14.5 million will fund a number of product improvements which show promise of reducing the cost of the missile. These improvements do not include the development cost of the lower cost seeker.

ANTI-RADIATION PROJECTILE (ARP)

QUESTION: Do you really need the extra $20 million for the ARP? Aren't you proposing to use FY-83 funds set aside for the HARM second source to fund the low seeker program?

ANSWER: Navy and Air Force are currently processing reprogramming requests to use a portion of the FY-83 second source funds to cover the low cost seeker program in FY-83 and FY-84 in accordance with Deputy Secretary of Defense Thayer's 16 June 1983 letter notification to Congress. Additionally, he stated he would ensure that adequate funds to continue this effort are placed in the FY-85 budget to be proposed to Congress next Spring. If the reprogramming requests are approved, then additional FY-85 funds will not be needed.

If the reprogramming requests are disapproved, the Navy supports the addition of $20 million to accelerate the development of anti-radiation guidance and control systems for integration with missile systems, but only if these funds are authorized above present levels. This project would utilize new technology developed for the Army's Anti-radiation Projectile (ARP); however, it should be clear that the Navy does not have a requirement for an ARP.

QUESTION: Do we need the HARM product improvement program regardless of what happens on the low cost seeker?

ANSWER: Yes. The major thrust of the product improvement program is correction of operational deficiencies and cost reduction initiatives that are independent of the low cost seeker program.

BIGEYE BINARY SPRAY BOMBS

QUESTION: OSD decided to delay production of the Bigeye Binary Spray Bomb, and has told the Armed Services Committees that there is no need for $43.2 million in Bigeye bomb production funds. However, OSD requests an addition of $26.1 million for production facilities previously scheduled for FY-83 reprogramming, and a $4.7 million increase in Bigeye R&D. How will the $4.7 million in Bigeye R&D be used?

ANSWER: Technical problems identified through scheduled testing dictated a restructured R&D program to incorporate "offstation" mixing. The $4.7 million increase in BIGEYE R&D will support additional test hardware (weapons, fuzes, etc.), additional flight test range support and increased engineering support.

QUESTION: Again, why don't we have a budget amendment to implement this major program change? Where are the justifications?

ANSWER: After discovery of a BIGEYE technical problem last fall, Office of the Secretary of Defense undertook a thorough review of the technical and managerial aspects of the BIGEYE program. The review revealed that although the basic BIGEYE technology was sound and that the problem was correctable, it was unlikely that the solutions could be proven in time to support starting procurement in FY 1984. DOD witnesses outlined the problem during a Senate Armed Services Committee hearing on 7 April, informing the Committee that obligating procurement funds in FY 1984 was high risk and that additional development was required. The same information was later presented to the House Armed Services Committee and the House Appropriations Committee during their hearings. The respective Armed Services Committees subsequently developed legislative proposals of alternative funding profiles which were included in the Defense Authorization Bills sent to their respective houses. Based on the Committees' action, OSD determined that a formal budget amendment was not required.

QUESTION: Since this is not supported by a formal budget amendment, why shouldn't the Navy absorb this new cost?

ANSWER: The technical problems encountered with the BIGEYE were not identified and assessed until after the President's budget requesting $43.2 million (Navy $21.5M, A.F. $21.7M) for BIGEYE procurement had been submitted. The Navy is absorbing the cost in that $43.2 million earmarked in the President's budget has been deleted. Congress recognized the criticality of the BIGEYE program and authorized $4.7M of the $43.2M procurement to be allocated as additional R&D funds to correct technical problems identified through scheduled testing.

QUESTION: The Navy urged that we support acceleration of BIGEYE just two years ago, in the FY-81 supplemental and reprogramming action. Now it appears that the acceleration was unwarranted, since production is being withheld. Was this failure contractor related, or is DOD primarily at fault for pursuing too ambitious of a program?

ANSWER: The fact that production is being withheld is not considered a failure. Withholding production reflects prudent managerial judgment to test solutions to identified technical problems revealed during normal testing of the BIGEYE. Causal factors are neither contractor or DOD related. The technical problems discovered during BIGEYE testing were unforeseen, yet were exactly the type problem the testing program was designed to reveal.

[Deleted.]

NAVAL SPACE COMMAND

QUESTION: The committee was notified that a Navy Space Command will be established October 1, 1983, at Dahlgren, Virginia. The Air Force set up a Space Command of its own some time ago. Instead of establishing a new Navy bureaucracy, wouldn't it be better to have a unified operation?

ANSWER: The Navy's unique contribution to national security mandates that we conduct effective broad-area ocean surveillance in support of both defensive and offensive roles. To meet these needs, the Navy historically has capitalized on space technology and systems for surveillance, communications, navigation, and intelligence. Programs such as Fleet Satellite Communications, TRANSIT Navigation Satellite System and several sensitive intelligence/surveillance systems have significantly enhanced naval operations. The capabilities of the systems have been incorporated into the daily command and control of worldwide naval operations and into the development of our warfighting plans. Additionally, these systems are used by all Services and other government agencies.

Space systems are an integral part of our naval structure and will play an increasingly important role in future naval operations. An evolutionary approach had been taken to ensure sound management of space development and operations. We established a Navy Space Systems Division in January 1981, inaugurated a postgraduate masters' degree program in space engineering and operations at the Naval Postgraduate School later that year and in September 1982, assigned a flag officer to head Naval space projects and acquisition in the Naval Electronic Systems Command Headquarters.

As a logical next step to strengthen control and to consolidate several related functions under a single commander we have chosen to establish a Naval Space Command. This Command will provide needed focus for operational use of space systems to meet our mission responsibilities and serve as a single point of liaison and cooperation with the Air Force Space Command and other DOD elements to ensure maximum operational utilization of scarce resources. The Naval Space Command will provide essential direct support to fleet units worldwide as well as other Service users and agencies.

QUESTION: Since there is no budget request to finance the creation of a Navy Space Command, how does the Navy propose to cover the cost of this Command?

ANSWER: Current Navy budget allocations will support the establishment of the Naval Space Command.

QUESTION: How many new admirals will be required for this command and where will the personnel come from?

ANSWER: At the present time the rank of the Commander has not been established. Whatever the rank, the billet will not require a change to the Navy Officer Programmed Authorization.

QUESTION: For the record, please provide the cost detail for the Navy Space Command to include personnel and other support costs.

ANSWER: The projected total operating cost for FY-84 has not been definitized but that cost is expected to be less than $1.2M.

ALWT

QUESTION: Last year, the appropriations conference required that the Navy submit by June 30 a "should-cost" study on the Advanced Lightweight Torpedo prior to release of $18 million provided for the full scale development of ALWT. What were the primary conclusions of the should-cost study?

ANSWER: The "Should Cost" study concluded that the full scale development program for ALWT could be completed by September 1988 at a cost of $716.7 million. The study further concluded that a realistic approach to ensuring eventual affordability is to build a quantity of torpedoes on a hard-tooled production line before they are taken to operational evaluation testing. The cost, reliability and performance of these production weapons represent the actual experience likely to occur in the fleet with major production line torpedoes, thus ensuring production decisions are made on the basis of known actual costs.

QUESTION: Has the design readiness review for ALWT started? Have any problems been encountered during the transition to full scale development?

ANSWER: The design readiness reviews for ALWT started in May 1983 with a highly successful review of the sonar design, which is now going forward to detail design and drafting. The design readiness review will complete during August with the command and control and propulsion reviews. Problems have not been encountered during this transition.

QUESTION: Has all test stand work been successfully completed?

ANSWER: All test stand work scheduled to be completed by the end of the demonstration and validation phase has been successfully completed.

QUESTION: How many full powered in-water runs of ALWT have been conducted?

ANSWER: A total of five in-water runs have been conducted at full power on the propulsion system. Each of these runs has been successful. There have been an additional 15 successful runs of the propulsion system which were designed to evaluate features of the torpedo other than full power demonstration.

QUESTION: Have you had a successful D&V test for the front and back end of the torpedo?

ANSWER: A total of seven full system torpedoes are now being used to conduct in-water runs which simultaneously test the front and back end of the torpedo. A total of 13 runs has been conducted during which the front and back end were simultaneously tested to the design performance level.

ADVANCED MINE DEVELOPMENT

QUESTION: Why was the $5.555 million appropriated last year for development of an intermediate water depth mine not spent out in FY 83?

ANSWER: After thorough investigation and review, the Medium Depth Mine (Intermediate Water Depth Mine) has been terminated due to cost and deliverability issues. The Navy is currently reviewing its advanced mine program to identify alternative uses of the appropriated $5.555M.

CAPTOR

QUESTION: The Navy instead tried to start a CAPTOR Mod 2 development program. But we denied a reprograming to start that program in FY 83, and the Armed Services Committees have denied the $15.9 million funding request. How will these actions affect the CAPTOR mine procurement program?

ANSWER: The CAPTOR Mod 1 meets or exceeds all Navy operational requirements. Since CAPTOR is an effective, highly useful ASW asset, the Navy plans to support CAPTOR procurement (d). Procurement of the CAPTOR Mod 1 mine will not be affected by the congressional actions denying R&D funding. However, congressional action denying the R&D funds will seriously impact the development of mining capability suitable to counter the evolving threat to the end of the century.

ADVANCED MINE DEVELOPMENT

QUESTION: What is the Navy planning in the way of a next generation mine to replace CAPTOR?

ANSWER: The Navy recognizes the need for next generation mining capability to provide effective mining assets to the end of the century for all mining regions. A program is currently being initiated to establish our mining needs to the end of the century, to assess existing and evolving technologies potentially applicable to these needs, and to identify specific mining concepts for development.

QUESTION: How long and costly a development program would that be? Will CAPTOR procurement need to be continued in the interim?

ANSWER: The Navy will be in a position to estimate cost/time for new generation mine/mines development after the Navy completes a structured systems study and technical assessment which will be directed toward identifying the goals and scope of new generation mine development. The realities of program cost constraints will be applied to any new generation mine/mines efforts. Further, the application of technologies to minimize unit production cost will be emphasized in new mine programs.

[Deleted.]

ASW Standoff Weapon

In March 1982, the Navy restructured the Common ASW Standoff Weapon program by limiting its development to only a submarine launched version, and by restricting Vertical Launch ASROC. These rockets which can deliver a wide range of Navy weapons, including ALWT.

QUESTION: However, in restructuring the ASW Standoff Weapons program, did you initially take away its ability to deliver the ALWT?

ANSWER: The Submarine ASW Standoff Weapon (ASWSOW) will be capable of delivering either a Nuclear Depth Bomb (NDB) or an Advanced Lightweight Torpedo (ALWT). The two payloads will be interchangeable on the basic ASWSOW. The basic ASWSOW includes the capsule, rocket motor, inertial guidance, flight control system, all associated structure and mounts, and the electrical and electronic systems. The basic ASWSOW will be developed so that it can carry, interface with and control either the NDB or the ALWT interchangeably. Because of the need to replace the obsolescent SUBROC, the basic ASWSOW and the NDB with its interstage structure will be developed first. The IOC of the ASWSOW with the NDB payload is (d). Development and testing of the ALWT interstage and software will begin in FY88 and continue into FY91. ALWT interface agreements are now in effect and development planning is proceeding. ALWT interface capability is being designed into the basic ASWSOW electronics; computer throughput and memory for the (to be developed) interfacing software has been reserved in the basic ASWSOW design. The budget for development and testing of the ALWT interstage and software is funded beginning in FY 1988. ALWT integration is a Pre-Planned Product Improvement (P^3I) which is expected to reach IOC in late (d) or early (d). However, before the P^3I begins in FY88, the CNO will examine the development status of both the ASWSOW and ALWT programs to decide if it is appropriate to begin the P^3I.

QUESTION: How much less expensive will the ASW Standoff Weapon be compared to the Common ASW Standoff Weapon (sub and surface launched)?

ANSWER: Life cycle cost estimates, excluding costs for the ALWT and NDB payloads, for the ASW Standoff Weapon (ASWSOW) and the Common ASW Standoff Weapon (CASW/SOW) in millions of dollars are as follows:

		ASWSOW*	CASW/SOW#
Development	Then Yr $	642.1	912.9
	FY 84 $	567.3	806.5
Production	Then Yr $	1286.3	3547.2
	FY 84 $	812.7	1577.3
Operations & Support	Then Yr $	430.3	831.8
	FY 84 $	214.4	678.1
Life Cycle Cost	Then Yr $	2358.7	5291.9
	FY 84 $	1621.4	3061.9

*Current estimate. Assumes production of 1000 units, 50% ALWT and 50% NDB.
#March 1982 estimate. Assumes production of 3254 units, 50% ALWT and 50% NDB.

QUESTION: How much would it cost to add, through product improvements, a capability to delivery ALWT? Are you planning on this?

ANSWER: Approximately $66.7 million in FY 84 dollars would be required to develop and test the modifications necessary to provide ASWSOW the capability to deliver ALWT. This effort is budgeted as a Pre-Planned Product Improvement (P^3I) beginning in FY 1988.

QUESTION: The Navy told the committee last year that it was too technically difficult and costly to pursue a Common (submarine and surface) ASW Standoff Weapon. What cost savings are gained by pursuing separate submarine and surface ship rocket programs over the common rocket approach?

ANSWER: The cost savings associated with developing two separate programs in lieu of a Common ASW Standoff Weapon is $60 million (then year dollars). Pursuit of the separate (submarine and surface launched) standoff weapon programs provides weapons which are tailored to the needs of individual platform requirements. The LAMPS helicopter provides surface launch platforms with a long range standoff weapon capability. These plat-forms also require an additional intermediate range stand-off weapon. Submarine platforms require a long range [deleted] weapon. The unit flyaway cost of these weapons driven by missile performance and quantity, shown below

	VLA	ASWSOW	CASW
Flyaway (FY84$K)	97.4	535.8	469.4
	(9691 units)	(1000 units)	(3254 units)

will satisfy platform requirements and provide training required to maintain tactical weapon readiness and proficiency.

ALWT

QUESTION: Vertical Launch ASROC is nearly three times as expensive as the current ASROC. Will the added capabilities we get from VLA (twice the range, can carry ALWT) be worth this additional expense?

ANSWER: Although Vertical Launch ASROC (VLA) is more expensive than conventional ASROC, the advantages fully support the additional expense.

CG 52 and DDG 51 class ships will be constructed with the Vertical Launching System (VLS) while the DD 963 class is scheduled for conversion. [Deleted.]

The increased range of the VLA missile is obtained at minimal extra cost while developing the vertical launch capability. The increased range enhances ship survivability by utilizing improved sonar systems to fire at greater stand-off range. [Deleted.]

QUESTION: Without VLA, will we have a capability to launch the Neartip torpedo and depth bombs on VLS-equipped ships?

ANSWER: Without VLA, [deleted].

QUESTION: Isn't VLA off to a relatively late start? Was sufficient testing already accomplished in the prototype program to justify Navy confidence in a program re-start?

ANSWER: The present VLA program is off to a late start due to cancelling of the VLA program in favor of a Common ASW Stand-off Weapon and the subsequent resplit of the program in April 1982. The original IOC remained constant and has resulted in a phased development program that gives first priority to [deleted].

As an outgrowth of the earlier extended range ASROC missile program, there has been extensive testing of both the old and present VLA prototype. Approximately 38 static motor tests and 10 test flights have given us confidence in the VLA program.

VLS TOMAHAWK

QUESTION: The Navy VLS descriptive summary shows an increase of $19 million over last year's projection for the Vertical Launch Tomahawk project, due to a restructured VLS Tomahawk development and testing program. Why was there such cost growth in the VLS Tomahawk project?

ANSWER: The TOMAHAWK/VLS program was restructured in 1982. The cost growth associated with this restructuring primarily resulted from these factors:

a. Parallel development of the baseline Armored Box Launchers (ABL) weapons system, adaptation of the ABL system to the battleship, and development of TOMAHAWK/VLS, stressed the ability of the prime integrating contractor to meet required schedules. The TOMAHAWK/VLS program therefore was shifted to the Naval Surface Weapons Center Dahlgren to reduce schedule risk. Funding to support this additional design agent resource had not been programmed.

b. Assumptions made about the extent of technical changes required to develop TOMAHAWK vertical launch capability and complete a full Test and Evaluation phase of these changes were underestimated. Areas of expected commonality with the Armored Box Launcher design for TOMAHAWK could not be achieved. Development costs for Package Handling Transportation and Storage (PHST) design and qualification differences were underestimated.

c. The expanded design requirements correspondingly increased the scope of subsystem and system level development testing required prior to entering formal DT/OT.

FY-84 major program efforts include:

a. Completion of TOMAHAWK Weapons Control System computer program development and end-to-end system testing at NSWC/Dahlgren;

b. Qualification of Cruise Missile Guidance Set (CMGS) vertical launch modifications to support production cut-in in FY-85;

c. Completion of the development of the tactical operational flight software for both land-attack and anti-ship TOMAHAWK/VLS missiles;

d. PHST certification testing of the TOMAHAWK/VLS All-up Round (AUR) modifications;

e. Qualification of the AUR/VLS canister system;

f. Development of two training curricula and eight technical manuals for the TOMAHAWK/VLS weapon system;

g. Commencement of flight test program;

h. Commencement of system installation in USS NORTON SOUND (AVM 1);

i. TOMAHAWK/VLS nuclear safety analyses and initial Nuclear Safety Study required for Nuclear Safety Certification.

MK 48 ADCAP

You are requesting $182.1 million in R&D and $80 million in advance procurement for the MARK 48 ADCAP torpedo. The second phase of operational testing will conclude in November, and the Navy is to decide on procurement of long-lead material and initiation of long-lead tooling in January.

QUESTION: How many in-water test runs have been conducted during the demonstration and validation phase of the MK 48 ADCAP development program?

ANSWER: The number of in-water test runs conducted during demonstration and validation (D&V) exceeds the number planned to be completed by this time. Two hundred and fifty two (252) D&V runs have been completed.

QUESTION: Has the full scale development program resulted in a design freeze? Or are there continuing problems in some areas, such as propulsion and supporting software?

ANSWER: Baseline configurations defined during the restructuring of the program in January 1981 have not been changed. No technical problems have been experienced to date which require a change in baseline. Software is under strict configuration controls and when necessary updated in block fashion to correct problems normal to this stage of D&V development.

QUESTION: Has MK 48 ADCAP been tested to the maximum limits of its operating envelope? What were the results?

ANSWER: ADCAP D&V torpedoes have repeatedly been tested at the extreme limits of high speed and the deep design depth. The dynamics and control are considered validated at those extremes.

QUESTION: This program was restructured last year to delay the IOC to take substantial concurrency between development and production out of the program. Is the current production plan considered efficient, with a significant contractor capital funding commitment to support the initial production build-up?

ANSWER: The baseline production program is deliberately planned to incrementally increase the manufacturing rate to an efficient level. The Hughes Aircraft Co. and associated subcontractor network have committed substantial capital funding to ADCAP. Negotiations continue to further increase capital expenditure in areas which benefit ADCAP.

QUESTION: What would be the cost and schedule impact if FY 84 WPN funding were cut from the MK 48 ADCAP program?

ANSWER: A delay of at least one year would be experienced. Since development is on schedule and the cadre of professionals necessary to transition to production would need to be maintained for a year at the prime and all subcontractors the development cost increase could approach $100 million. The disruptive effects to both development and production would therefore far exceed the FY 84 request of $78.5 million for long lead activities.

SM-3 Missile V. SM-2 Derivative

QUESTION: For a new air defense missile for its Outer Air Battle Mission, the Navy would prefer an entirely new SM-3 Development Program rather than a derivative of the SM-2, called SM-2 Block III. Both authorization bills favor the SM-2 derivative. How would this alter your budget request?

ANSWER: The Navy has identified the need for a surface launched missile capable of very long range intercepts to perform in the Outer Air Battle. The authorization bills, limiting this missile development to a derivative of SM-2, are too restrictive. Studies have shown that SM-2 does not have the growth potential to perform in the Outer Air Battle. However, initiation of either development program in FY 1984 would require the same RDT&E, N in FY 1984.

QUESTION: Please provide the Committee with justifications and funding requirements for the SM-2 derivative.

ANSWER: Because the Navy is directing its efforts towards a long range surface launch missile for the Outer Air Battle, funding requirements have not been developed for SM-2 Block III.

PHOENIX REPLACEMENT

QUESTION: Is the Navy considering in its FY 85 deliberations a new Advanced Combat Air Intercept Missile (ACIM)? What conceptual work has been done out at China Lake on a Phoenix follow-on?

ANSWER: The Advanced Common Intercept Missile Demonstration (ACIMD) program has been formulated to evaluate the available technology to significantly improve long range air-to-air missile performance and firepower in the Outer Air Battle (OAB). This program is structured to examine certain specific performance parameters of two major missile subsystems, guidance and propulsion, as well as the interfaces between these subsystems, to demonstrate that technology is sufficiently mature for the Navy to initiate a new start for a PHOENIX follow-on missile. This missile will be multi-aircraft compatible, increase carrier loadout and sustainability, and

employ an acquisition strategy based on competition, similar to SIDEWINDER. Work is being performed under the technical direction of China Lake under PE 63308N.

PHOENIX REPLACEMENT

QUESTION: Could the Navy really afford two costly, ongoing R&D programs for the Outer Air Battle, both the SM-3 and the Phoenix follow-on? Shouldn't it prioritize and choose one new program or the other?

ANSWER: The Soviet threat to maritime forces continues to grow. Particularly stressing are the long range BACKFIRE and potential follow-on aircraft. Mission analysis and studies have concluded that follow-on developments to both Phoenix and SM-2 Block II STANDARD Missiles are required to meet this increasing threat. The Navy is actively investigating technologies to support both, but there has been no commitment to full scale development of either follow-on missile project.

The Phoenix follow-on is being examined through the Advanced Common Intercept Missile Demonstration program. The object is to determine, with the help of industry, if a lighter weight and longer range air-to-air missile can be developed to improve F-14 firepower. Potential applicability to F/A-18 and A-6 aircraft is also being explored.

The technologies required for the SM-2 Block II follow-on are being examined under the SM-3 program. This weapon will take full advantage of the AEGIS combat system, deploy from the Vertical Launch System and have significantly increased range and performance. Extensive studies and technology development options are being explored to refine performance and design definitions. Included in this program are multi-mode guidance and propulsion technology exploration to support a missile of this type.

IIR MAVERICK

QUESTION: The Navy is requesting $17.7 million in FY 1984 for procurement of 15 IIR Maverick missiles for testing and A-6E TRAM integration. How high a priority is this program in Navy eyes?

ANSWER: The IIR Maverick is the only weapon which will fully complement the Navy's investment in A-6E TRAM and A-7E/F/A-18 FLIR. The weapon will provide a completely autonomous launch and leave ship attack capability in day or night conditions. Of the $17.7 million requested in FY 1984, $5.0 million is required to complete development and conduct the first phase of the operational test (OT-IIA) program. The remaining $12.7 million is for the procurement of the 15 missiles for the second phase of operational testing (OT-IIB) and A-6E integration.

QUESTION: What are the Navy's out-year plans for procurement of IIR Maverick?

ANSWER: As expressed in the FY-84 budget, the out-year plans for IIR Maverick are:

	FY-84	FY-85	FY-86	FY-87	FY-88	TOTAL 84-88
QTY		100	190	205	265	760
WPN		29.8	26.2	27.3	28.8	112.1
RDT&E,N	17.7	7.8	6.3	-	-	31.8

QUESTION: How does the Navy intend to restructure the IIR Maverick testing program, given the likelihood the 1984 program will not be authorized?

ANSWER: Not authorizing the funds for IIR Maverick can have two deleterious results. Either the program will be cancelled or it will slip severely. If there are no FY 1984 R&D funds for IIR Maverick, the ongoing development, test and evaluation (DT&E) flight program can be completed, but other development efforts and operational testing cannot be accomplished.

SAL GP PROGRAM

QUESTION: Are we pushing the program simply to qualify this new system for the DDG 51 class destroyer? Is that the real driver?

ANSWER: Introduction of 5-inch SAL GP expands the Navy's fire support capability of its newest and most effective NGFS ships, DD 963/DDG 993 and DDG 51. This capability to neutralize moving point targets with a few rounds is needed for the DD 963/ DDG 993 classes in this decade. Establishment of a strong production base in FY 1983, with the necessary preproduction transition tests, is critical in providing this operational capability to DD 963 as well as DDG 51.

QUESTION: What is the status of the target designation systems, both for shore targets and ship targets? Isn't the Seafire system still in its preliminary stages?

ANSWER: The Army has procured 519 units of the Ground Laser Locator Designator (GLLD) and these units are already available in support of the Navy SAL GP and the Army COPPERHEAD. The Marine Corps uses a portable and lighter unit called the MULE (Modular Universal Laser Equipment). The Marines have already procured 131 MULE units. In addition, they will procure 134 units in FY 84 and 115 units in FY 85 for a total of 380 laser designator units to be available for NGFS with the Navy SAL GP by the end of 1986. In addition, the SAL GP has been successfully tested with the USMC OV 10 (aircraft) laser designator, which can also be used for indirect fire support mission. The SEAFIRE concept has been in development for a number of years and has been tested very successfully jointly with the SAL GP. SEAFIRE is now preparing for a competitive engineering development procurement to meet the DDG 51 schedule; this shipboard laser designator system will not only support troops ashore during NGFS, but will also provide an autonomous capability against surface targets (such as cruise missile boats and other ships) at sea during direct illumination missions.

QUESTION: In view of the problems that have plagued Copperhead, and considering the lack of any solid development and testing experience with SAL GP, why should we begin funding a production program so early?

ANSWER: There is an exceptionally strong and solid development and testing experience with the Navy SAL GP. The SAL GP program completed a very successful development program, one of the best ever to come out of the Naval Material Command. The GP has achieved exceptionally successful test results during Land Base Tests, during Technical Evaluation and during Operational Evaluation. After a thorough testing under operational conditions, the

independent Navy evaluation activity, OPTEVFOR, has recommended the Navy SAL GP for deployment and the Navy SAL GP has received Approval for Service Use (ASU). The COPPERHEAD is now in production and has achieved very high reliability. Considering the lead times in establishing and proving a production line, in acquiring high technology materials and components and in establishing a base for such requirements, a 1983 start will assure the needed requirement for the DD 963/DDG 993 classes of ships and assure meeting SAL GP requirements for the DDG 51 class.

TOMAHAWK

QUESTION: The Navy is apparently ready to double the production rate of the TOMAHAWK to about 10 to 15 missiles per month. Is it really wise to increase the production rate at this point when the operational test and evaluation has not been completed?

ANSWER: Significant progress has been achieved in the TOMAHAWK program during the past year. Management and production process changes have resulted in increased missile quality and reliability. The results of the changes made are beginning to be reflected in test results. Since the resumption of flight testing in November 1982, there have been 11 successful flights and two failures. The last 8 consecutive flights have been successful.

In April 1983, the Chief of Naval Material chartered a formal team to investigate the production readiness status of the principal contractors. This Production Readiness Assist Team (PRAT) concluded there were no major technical barriers to increase production. Production of the number of SLCM and GLCM missiles already authorized by Congress requires a production rate of about 20 missiles per month. The production rates have been restricted to 4-6 per month until the Navy is satisfied with flight test performance. Based on the reviews conducted to date, the Navy is considering increasing production to 10-12 missiles per month as the next logical step toward full rate production. This production rate is required to provide sufficient missiles for the Ground Launched Cruise Missile which becomes operational in December 1983. The decision to authorize full rate production will be made following the next series of Operational Test and Evaluation flights.

QUESTION: The Senate Armed Services Committee was very critical of the progress of this program to date. Is it your opinion that the recent restructuring of this program will overcome their objections?

ANSWER: Yes. Since the TOMAHAWK program was restructured last year, a large number of significant steps have been taken to correct fundamental problems. Management within the Project Office and at the contractor has been reorganized. System Engineering and Integrating Agents (SEIA) have been established for both the missile and the entire TOMAHAWK Weapon System. Each SEIA receives technical support from a Navy Laboratory.

Major production process changes have been incorporated to improve the quality and reliability of the missiles and each subcomponent. Virtually all production procedures were reviewed and revised. Inspections and audits to ensure full implementation of the corrective actions are continuing.

The results of these changes are beginning to be evident in the flight test program. Successful tests of all four SLCM/GLCM

variants have been conducted. The last eight consecutive flights have been successful. As a result of the actions taken, the continued monitoring of all aspects of the programs and the results of the flight testing, the Navy is confident the TOMAHAWK program is being conducted in a technically competent and fiscally sound manner.

QUESTION: I understand the battleship NEW JERSEY has received its initial missiles. When will the full complement of 32 TOMAHAWKS on this vessel be available?

ANSWER: Sufficient missiles to completely loadout the USS NEW JERSEY will be available by [deleted].

HARM

QUESTION: You mention the need for the High Speed Anti-Radiation Missile to destroy or suppress land or sea-based radars. Yet you do not mention the funds added by the Congress for the second-sourcing of this missile which has become extremely costly. Where do we stand on developing a second source of production for this missile?

ANSWER: A competition to develop a second source prime contractor has been completed; however, the winner has not been announced due to the OSD decision to employ a single source acquisition strategy. Navy and Air Force are currently processing reprogramming requests to use a portion of the FY-83 second source funds to cover a lower cost seeker development program in FY-83 and FY-84 in accordance with Deputy Secretary of Defense Thayer's 16 June 1983 letter notification to Congress. Additionally, he stated he would ensure that adequate funds to continue this effort are placed in the FY-85 budget to be proposed to Congress next Spring. The reprogramming requests will ask to use the remainder of the FY-83 second source funds to procure additional HARM missiles.

ADVANCED MINE SYSTEM

QUESTION: What existing mines are scheduled to be replaced by the advanced mine system?

ANSWER: At this point in time, the Navy has [deleted] [deleted] of the new generation mine(s) that will be required in the out years. In all likelihood, however, the new generation mine(s) will definitely replace the [deleted] and will probably complement the [deleted] role.

AMRAAM

QUESTION: The Navy and Air Force are jointly developing this program as a follow-on to the SPARROW as an answer to the air-to-air missile requirement for the remainder of the century. This missile is claimed to have significantly improved combat effectiveness over the Sparrow. Would you comment on the improved capability?

ANSWER: AMRAAM, an Advanced Medium Range Air-to-Air Missile, has several planned improved operational aspects over that of the current Sparrow. They are: (1) the compatibility with launch aircraft track-while-scan radars, providing simultaneous multi-

target engagement; (2) an active missile seeker providing a launch and leave mode and (3) a higher average velocity over nominal engagement ranges and altitudes.

SUBMARINE-LAUNCHED STANDOFF WEAPON

QUESTION: One of the criticisms of SUBROC has been that it uses only a nuclear warhead and its use could be constrained by political considerations. Is it still the Navy's position that a conventional warhead is necessary for this weapon?

ANSWER: Yes. If a conventional warhead (payload) is developed which can provide the ASW Standoff Weapon with a Hit Probability (P_H) approaching the Kill Probability (P_K) of a Nuclear Depth Bomb payload, the alternative conventional payload will give the Navy a flexibility of ASW capability of great potential value. The Navy firmly believes that a conventional payload is a necessary alternative for the ASW Standoff Weapon.

QUESTION: What about the Advanced Lightweight Torpedo (ALWT)? Does it have the range that is compatible with the requirements for the standoff weapon?

ANSWER: Yes. Extensive analyses performed using very detailed engagement models of anticipated warfare scenarios show that the specific combination of endurance and speed expected of the ALWT will provide the ASW Standoff Weapon with a high Hit Probability (P_H) when used against Soviet submarines, [deleted].

QUESTION: Are there other alternatives for the standoff weapon requirement that have the accuracy and quickness required?

ANSWER: Other conventional alternatives studied in the engagement analyses included the MK 46 MOD 5 (NEARTIP) torpedo and the British STINGRAY torpedo. Neither alternative provides a combination of speed and endurance which is capable of achieving an effective Hit Probability (P_H) against [deleted].

CAPTOR

QUESTION: Since December 1976, the Navy inventory of the MK-60 CAPTOR mine has decreased significantly. Why has this occurred?

ANSWER: Priority CAPTOR minefield levels from 1976 [deleted] [deleted] were derivative of the [deleted] [deleted]. The resulting inventory recommendation consisted of CAPTOR mines. An alternative recommendation for (d) CAPTORS was included to provide less capability and flexibility but a reasonable alternative if budget constraints preclude procuring the larger inventory. The present inventory objective of (d) reflects the later alternative plus a (d) maintenance pipeline.

QUESTION: Would you comment on how priority minefield levels have changed since 1976 to reflect modifications in U.S. Naval mine warfare strategy?

ANSWER: [Deleted.]

QUESTION: Will this strategy continue to change in the future, or will current inventory objectives be met?

ANSWER: We expect the IO of [deleted] in the future, however, the rate at which we build to this IO may have to continue to be adjusted to work within cost constraints.

QUESTION: What are the current CAPTOR buy-out objectives, and does the Navy plan to meet these objectives?

ANSWER: The inventory objective for CAPTOR is (d) mines. The Navy plans to meet this objective.

NAVY DEEP WATER MINE INVENTORY

QUESTION: Would you comment on the U.S. Navy's deep-water mine inventory, and compare it with the Soviet deep-water mine inventory.

ANSWER: The U.S. Navy presently has only 1 deep water mine (CAPTOR). The only other moored mines in the U.S. inventory are the MK 56 and 57 [deleted].

MINE	QTY	DEPTH	W/H	DESCRIPTION
MK 56	[deleted]	[deleted]	[deleted]	[deleted]
Mk 57				
CAPTOR*				

The Soviet Union is estimated to have the following inventory of fairly modern design (reference 1) NISC TA 005-83, 2) NISC - Warsaw Pact MW Capabilities, Jan 82).

MINE	QTY	DEPTH	W/H	DESCRIPTION
[Deleted]				
[Deleted]				
[Deleted]				
[Deleted]				
[Deleted]				
[Deleted]				
[Deleted]				

QUESTION: What time element would you say that it would take the U.S. Navy to develop and procure adequate levels of a replacement deep-water mine for CAPTOR?

ANSWER: [Deleted.]

SUBCOMMITTEE RECESS

Senator STEVENS. The subcommittee will recess.

[Whereupon, at 11:20 a.m., Tuesday, July 26, the subcommittee was recessed to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

THURSDAY, JULY 28, 1983

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m. in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Rudman, and Weicker.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE NAVY AND MARINE CORPS

STATEMENT OF VICE ADM. ROBERT F. SCHOULTZ, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR AIR WARFARE

ACCOMPANIED BY:

LT. GEN. WILLIAM F. FITCH, U.S. MARINE CORPS, DEPUTY CHIEF OF STAFF FOR AVIATION, HEADQUARTERS, U.S. MARINE CORPS

VICE ADM. JAMES B. BUSEY, U.S. NAVY, COMMANDER, NAVAL AIR SYSTEMS COMMAND

REAR ADM. PAUL T. GILLCRIST, U.S. NAVY, DIRECTOR, AVIATION PLANS AND REQUIREMENTS

REAR ADM. ROGER D. JOHNSON, U.S. NAVY, DEPUTY COMMANDER FOR PLANS AND PROGRAMS, NAVAL AIR SYSTEMS COMMAND

COMMODORE JOHN C. WEAVER, U.S. NAVY, F/A-18 PROJECT MANAGER

COL. HAROLD W. BLOT, U.S. MARINE CORPS, AV-8B PROJECT MANAGER

NAVY AND AIR FORCE AIRCRAFT PROCUREMENT PROGRAM

OPENING STATEMENT OF SENATOR STEVENS

Senator STEVENS. Good morning, gentlemen.

We are here this morning to examine the Air Force and Navy budget estimates on major aircraft programs so long as time will permit. We will be covering the aircraft procurement accounts and related research and development funding. Most of our questions stem from a series of budget questions developed by our staff and answered in writing prior to the hearing record.

Our principal witnesses today will be Lieutenant General Skantze of the Air Force, Vice Admiral Schoultz of the Navy, and Lieutenant General Fitch of the Marine Corps.

We would like to hear this morning first from the admiral, and then General Fitch, and go to the questions on the Navy aircraft program before going to the Air Force, if that is agreeable.

INCREASE IN AIRCRAFT PROCUREMENT REQUESTS

This year both the Air Force and to a lesser extent the Navy, have proposed substantial increases in their aircraft procurement and development accounts. The 29-percent increase in the Air Force aircraft account in the largest single increase in this year's budget and, as such, will merit close attention. These large increases are projected to continue next year. Collectively, the matters we are about to consider account for 36 percent of the Defense procurement request and 12 percent of the entire DOD budget.

In your statements, gentlemen, you have alluded to the importance of spares and repair parts to your aircraft program. We intend to have a hearing next week, if possible, into the Department's and the services' spares and repair parts procurement practices so that we can fully understand the extent of the recently reported cost excesses. We will not try to get into that problem here today.

Admiral, if you would be kind enough to introduce those who are with you at the witness table, we will proceed after Senator Rudman makes an opening statement, if he has one.

Senator RUDMAN. I do not have an opening statement, Mr. Chairman. Thank you.

Senator STEVENS. Thank you.

Good morning, Admiral.

INTRODUCTION OF ASSOCIATES

Admiral SCHOULTZ. Thank you, Mr. Chairman. I am honored to be here to present our 1984 Navy aircraft procurement program. I am accompanied by Lieutenant General Fitch——

Senator STEVENS. Can you pull the microphone up closer to you, please. I cannot quite hear you, Admiral.

Admiral SCHOULTZ. Yes, sir.

I am accompanied by Lieutenant General Fitch, Marine Corps Chief of Staff for Aviation, and Vice Admiral Busey, Commander of Naval Air Systems Command.

I have submitted a written statement and ask that it be included in the record, Mr. Chairman.

Senator STEVENS. Yes, sir, it will be.

NAVY PROCUREMENT PROGRAMS

Admiral SCHOULTZ. Our Navy procurement program includes a wide variety of aircraft. These different types are required to execute all of the missions assigned to the Navy and to the Marine Corps. In the interests of brevity, I will not discuss each aircraft in depth, but I do have backup material if you would like to see it on any specific aircraft.

I would like to make a general brief statement. In our budget request we seek to strengthen Naval Aviation by balancing competing priorities to gain the most with the least investment.

In fact, our fiscal year 1984 aircraft procurement budget reflects just an 8.4 percent increase over the fiscal year 1983 program. This represents only a 2-percent real program growth after inflation is considered.

We have not been able to proceed with procurement in some areas as required, but I am satisfied that in this year's budget request, the distribution has been done in the most efficient manner for naval aviation. Your steadfast support, which has been so key to rebuilding our vital naval forces, we hope will be maintained.

The Soviet threat continues to build, and we must be ready to respond.

There are three central elements which determine our force effectiveness: system readiness, the quality and quantity of the people who maintain and operate the systems, and the capability of the individual weapon systems.

NAVAL AVIATION READINESS

We have made some measurable improvements in naval aviation readiness, and we plan to improve it further. Our overall goal is to achieve an aircraft mission capable rate of 70 percent, and our readiness trends are moving positively in that direction.

We achieved an MC rate, a mission capable rate, of 62 percent in 1982, and forecast 64 in 1983 and 66 in 1984. I am pleased to report that our rate for 1983 thus far is above that forecast, and the indication is that the positive trend will continue.

Readiness continues to be the watchword of our resource allocations in this budget request. Coupled with our ongoing efforts, we will keep naval aviation moving in the right direction.

PERSONNEL

The positive efforts of the administration and the Congress to insure adequate pay and allowances have combined to lessen the critical shortage of our trained petty officers and aviators in our force. I must hasten, however, to caution that we are not out of the woods yet in our retention and quality of personnel problems. We must never lose sight of the fact that our greatest asset has been and will remain our superb team of men and women. Your support in continuing to approve the programs that are vital to the retention of skilled people in aviation will be much appreciated.

WEAPON SYSTEMS CAPABILITY

The last element in our effectiveness equation is the capability of our weapon systems, including the force levels. With the recent delivery of the U.S.S. *Vinson*, our carrier force consists of 13 deployable carriers, one in service life extension program in Philadelphia, and the training carrier, the U.S.S. *Lexington*. We have 12 airwings assigned to those carriers and are standing up the 13th airwing this year. The introduction of the U.S.S. *Teddy R. Roosevelt* in fiscal year 1988 will bring the total deployable carriers to 14, at which time we plan a 14th airwing.

Our nuclear carrier No. 73 will enter service in about 1992 and will replace the *Coral Sea* in fleet service to sustain our objective of

15 carriers. These force levels, combined with the superior capability of our new airborne systems and upgrades to our existing platforms are the key to the effectiveness of the carrier battle group.

COST DISCIPLINE

I totally support the CNO's position that cost discipline and cost technology are the key to improving our management practices. Substantial progress has been made in aircraft procurement cost reductions, and we will continue to hold the line in future contractual agreements.

Another cost-effective effort is improved safety which not only saves aircraft and consequently money, but more importantly, saves irreplaceable lives. The Navy and Marine Corps have recently completed the safest year on record for naval aviation as a rate of 4.44 major mishaps per 100,000 flight hours was achieved. That record included improvements in all categories in comparison to 1981. Mishaps were reduced by 10 for a total of 90, fatalities were reduced by 9 for a total of 74, and destroyed aircraft were reduced by 4 for a total of 83.

The reduction in destroyed aircraft alone represents a savings of $120 million based on the average cost of $30 million per combat aircraft.

With continued emphasis on safety at all levels, we will further reduce the number of costly mishaps, and we frankly are doing better this year than we did last year, and we are still hoping to improve.

We have the basic ingredients and are on the right track to insure a strong future for naval aviation. Our fiscal year 1984 budget submission will provide the cohesive links necessary to permit carrier battle groups and naval aviation as a whole to retain their unchallengeable position on the seas of the world.

Naval aviation, like the Navy as a whole, is on the move. I am convinced that we are significantly more capable today than we have been in several years.

I think General Fitch would like to make a brief statement, and after that, Admiral Busey, the general, and I will respond to your questions, sir.

[The prepared statement of Admiral Schoultz follows:]

PREPARED STATEMENT OF VICE ADMIRAL ROBERT F. SCHOULTZ

DEPUTY CHIEF OF NAVAL OPERATIONS (AIR WARFARE)

It is my privilege today to describe briefly the Fiscal Year 1984 Navy Aircraft Procurement Program, and to stress the vital necessity of maintaining the viability of the Navy-Marine Corps TACAIR aviation team. In our budget request, we seek to strengthen Naval Aviation by balancing competing priorities to gain the most for the least investment. I am satisfied that this budget request's distribution has been done in the most efficient manner for Naval Aviation. At the outset, I want to place our budget request in the appropriate context. Please allow me to start with a few observations.

- Our national wartime and crisis strategy continues to require that we maintain the ability to protect U.S. interests worldwide, at any time, in any ocean and in any level of conflict. The Naval Aviation requirements reflected in our fiscal year 1984 budget request are carefully considered in light of our ability to respond to a Soviet Navy that is extremely capable of conducting naval warfare operations anywhere, at any level of conflict. The threat of the Soviet fleet is real and growing.

- The Carrier Battle Group's continued superb performance in support of our national foreign policy has been the key to those efforts' success. Ensuring our Carrier Battle Groups' ability to respond whenever and wherever they are called upon, to protect our sea lines of communication (SLOC) in time of conflict, and that they remain powerful enough to preserve peace on a daily basis is essential in providing maritime sufficiency.

- We have allocated Naval Aviation's resources to wartime sustainability, maintainability, and capability. We also seek to gain modernization of our existing forces and a modest increase in force levels to meet growing requirements with which we are faced. Our fiscal year 1984 budget request is a balanced plan which permits each element to interact to attain the greatest synergy for Naval Aviation.

There are four central elements which determine our force effectiveness: system readiness, the quality and quantity of people who maintain and operate the systems, the capabilities of the individiual weapon systems, and our ability to sustain combat operations over a projected period.

In the area of readiness, our overall long term goal is to achieve a minimum Aircraft Mission Capable (MC) rate of 70 percent. I am pleased to report that our readiness trends are moving positively in that direction. We averaged 62 percent MC in fiscal year 1982 and forecast 64 percent in fiscal 1983 and 66 percent in 1984. One of the prime elements in material readiness is aviation spares. The fiscal year 1984 budget request for both spares and component repair funds is increased over the fiscal year 1983 levels as part of our ongoing effort for higher readiness and sustainability. Our current data show that past investments in this area are starting to pay off in increased availability. Readiness continues to be the watchword of our resource allocations and this budget request, coupled with our ongoing efforts, will keep Naval Aviation moving in the right direction.

The previous positive efforts of the Administration and the Congress to ensure adequate pay and allowances have combined to lessen the critical shortage of trained petty officers and aviators in our force; I must hasten to caution that we are not out of the woods yet in our retention and quality of personnel problems. We must never lose sight of the fact that our greatest assets have been and will remain our superb team of men and women - without them all else is for nought. I elicit your support in continuing to approve programs that are vital to the retention of skilled people in Naval Aviation.

The last two elements in our effectiveness equation are the capability of our weapon systems and adequate force levels to sustain operations. With delivery of USS VINSON, our current carrier force consists of 13 deployable carriers, one in SLEP and the training carrier, USS LEXINGTON. We have 12 airwings assigned to those carriers and are standing up the 13th carrier's airwing during this year. Introduction of USS T.R. ROOSEVELT in fiscal year 1987 will bring total deployable carriers to 14, at which time we plan a 14th airwing. When CVN-72 enters service in 1990 we will have 15 carriers and 14 carrier wings. CVN-73 will enter service in 1992 and will replace the CORAL SEA in the fleet to sustain and fully support the force of 15 carriers.

In addition to these central effectiveness issues, the fiscal year 1984 budget request supports a complement of formidable aircraft that will provide the capabilities to assure the achievement of control of the seas and projection of power ashore. The F-14 TOMCAT is still the most capable fleet air defense fighter of the Free World. The A-6 INTRUDER provides an all-weather, medium attack capability second to none. With the addition of the F/A-18 HORNET, that complements the F-14 and provides the hitherto totally lacking flexibility to perform both fighter and strike missions, the CVBG is much stronger, offensively and defensively.

In addition to an exceptionally thorough operational evaluation of the F/A-18, the Navy plans to deploy aircraft carriers in both fleets with various air wing compositions to gain valuable operational data on revised air wing effectiveness. USS KENNEDY will deploy with an air wing comprised of A-6Es and F-14s; USS CONSTELLATION will operate with A-6Es, F-14s, and F/A-18s; and USS MIDWAY and USS CORAL SEA will be outfitted with A-6s and four squadrons each of F/A-18s. All carriers will retain a normal deck multiple of support aircraft. Each of these air wings has strengths and limitations that must be considered in tactical planning. The preliminary results of these deployments will be available for analysis in FY-86.

As the Navy gains experience in operating F/A-18 aircraft, we see it developing as the core around which to construct the power projection capability of the carrier battle group. It will serve as fighter escort, thereby freeing F-14s for fleet air defense; perform SAM and AAA suppression; conduct interdiction strikes; and provide close air support and air reconnaissance. The force multi-plier effect of the F/A-18 is an important aspect that offers increased effectiveness of carrier battle groups and Marine Air Wings.

The Battle Group's integral ASW protection resides in the S-3 and SH-3 aboard our carriers and our LAMPS helicopters onboard our surface combatants. These, and other aircraft, will continue to be modified and upgraded to meet current and emerging threats. They will also be outfitted to launch an impressive array of air-to-air and air-to-surface weapons, including the PHOENIX, SPARROW, SIDEWINDER, HARM, HARPOON and Laser MAVERICK. Supported by KA-6D tankers, early warning E-2C HAWKEYES, jamming EA-6B PROWLERS, reconnaissance equipped aircraft, and replenished by

our improved C-2A carrier-onboard-delivery aircraft, we will continue to put to sea a force capable of convincing potential adversaries that predictable loss from military action will far exceed expected gains.

It is well documented that we have not been procuring aircraft in the last decade in sufficient quantities to maintain our force structure. Despite increased funding allocated to the defense budget, affordability continues to be a crucial issue in improving Naval Aviation. We will have to continue balancing funds between the all important improvement of current systems. One of the most cost-effective methods of achieving better capabilities at lower investment is realized through our Aircraft Modification Program, funded in Budget Activity 5.

An area that, with concentrated extra effort, can save us many dollars and, more importantly, irreplaceable lives is aviation safety. The safety record of 1982 continued to improve and was significantly better than 1981, which was our previous best year. The improvements over the past several years represent significant savings in lives and destroyed aircraft. A comparison of 1982 with 1981 statistics reveals a one-year cost avoidance savings in aircraft alone of approximately $120 million. I am confident that the emphasis which is placed on aviation safety at all levels will ensure continued improvement.

Our goal is to build a credible force, perceived as credible, which employs tactics and strategies which enable us to fight intelligently and effectively. That includes not only ensuring a strong, capable naval air arm, but an ongoing, practiced interoperability with our sister services which provides ever-increasing capabilities in combined arms efforts. With your continued support, we shall ensure our ability to attain and sustain that goal.

Senator STEVENS. Yes, sir, General Fitch.

General FITCH. Good morning, Mr. Chairman.

I have a prepared statement that I would ask to be entered into the record.

Senator STEVENS. All of the prepared statements will be entered into the record.

MARINE CORPS AIRCRAFT PROGRAM

General FITCH. Mr. Chairman, our aircraft program is presented in the fiscal year 1984 budget and is very vital to the Marine Corps in improving our combat capability.

In the helicopter area I would particularly note two programs.

VUGRAPH 1

AH–1T COBRA AND JVX

General FITCH. The AH–1T COBRA, and the JVX tilt rotor program.

The Marine Corps has a small force of attack helicopters, only three active squadrons, and we are short AH–1T COBRA aircraft at this time. We are supposed to have 24 aircraft in each of our two AH–1T squadrons, however we can provide an average of only 21 aircraft. By 1986, through normal attrition, that number will be down to about 19 aircraft per squadron, or 5 aircraft below authorized.

Our third active tactical squadron and our training unit will still be operating early state-of-the-art Vietnam era AH–1J helicopters. Our reserve unit has only 8 aircraft assigned where there should be 24.

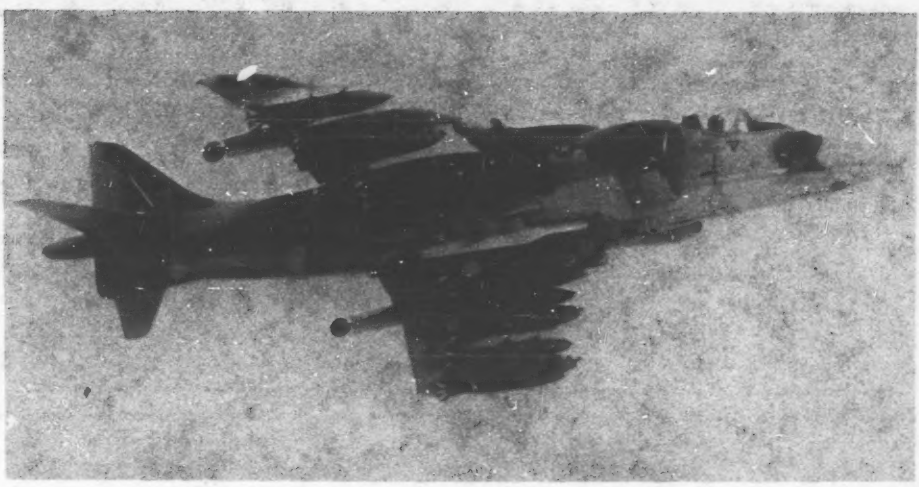
In fiscal year 1984 we are asking for $17.8 million long-lead funding for procurement of 22 AH–1T aircraft in fiscal year 1985, with an additional 22 aircraft to follow in fiscal year 1986.

The Marine Corps has been operating the AH–1T since 1978. This fiscal year 1985–86 procurement will provide 24 operating aircraft in each of three active attack helicopter squadrons. It will also permit us to properly equip the Reserves with the AH–1J.

VUGRAPH 2

JVX TILT ROTOR PROGRAM

General FITCH. In the medium-assault helicopter field, the Marine Corps is fully supportive of the JVX tilt rotor program. The introduction of JVX in 1991 is critical to the Marine Corps due to normal attrition of our CH-46 assets. The tilt rotor program promises a giant step forward for rotary wing aviation, and in my view a step comparable to the introduction of the jet engine for fighter aircraft.

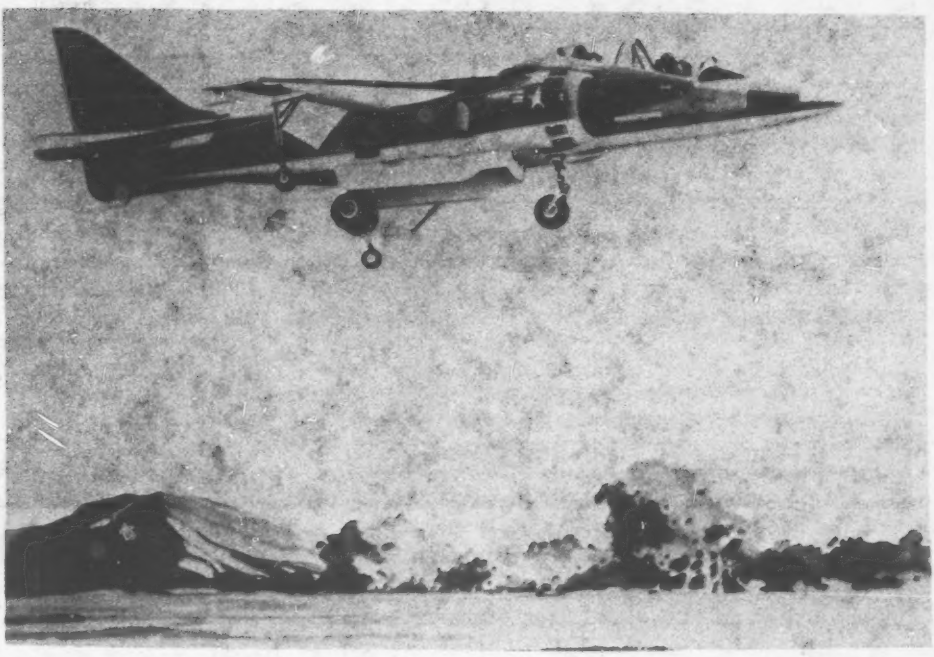


VUGRAPH 3

AV-8B

General FITCH. Our AV-8B program is going very well, and we expect the AV-8B to fully meet our expectations. It is the key to modernization of our light attack force, and the Marine Corps is very appreciative of the support of this committee in the past years.

In fiscal year 1984 we are requesting $1,047 million including initial spares to procure 32 aircraft which provides an average fly-away cost of $20.1 million per aircraft. The fly-away cost of the 32d aircraft in fiscal year 1984 would be less than $18 million.



VUGRAPH 4

TAV-8B TRAINING PROGRAM

General FITCH. To provide for effective training of AV-8B Harrier pilots we have initiated the TAV-8B program which will provide a very much needed two-place trainer. For the two-place trainer we are requesting $47 million in fiscal year 1984 R&D funds.

VUGRAPH 5

F/A-18

The Marine Corps is currently operating three tactical F/A-18 squadrons. Our Marine pilots think that the F/A-18 is the best fighter in the world. Also, we are operating two squadrons of the CH-53E heavy lift helicopter.

VUGRAPH 6

CH-53E

General FITCH. We are very pleased with that aircraft.

Recently the CH-53E demonstrated its capability to carry over 16 tons a distance of 50 miles on a 90-degree Fahrenheit day, and return the aircraft to the base.

Last year General Barrow told this committee that the A-6E Intruder was vital for providing all-weather close air support for the Marines on the ground.

VUGRAPH 7

A-6E

General FITCH. No other aircraft can do the all-weather attack mission that the A-6E does. We ask the committee's continued support for the A-6E program.

In summary, Mr. Chairman, your support for our program is requested in fiscal year 1984 and will significantly enhance our readiness.

Thank you.

[The prepared statement of General Fitch follows:]

PREPARED STATEMENT OF LT. GEN. WILLIAM H. FITCH

DEPUTY CHIEF OF STAFF FOR AVIATION

U.S. MARINE CORPS

Mr. Chairman, Distinguished Members of the Committee:

It is a privilege to address the committee on the status of Marine Aviation. I would like to thank you for the strong support which over the past year has allowed us to make significant progress in increasing our combat capabilities. I am pleased to report to you that this past calendar year we recorded our best year ever in aviation safety (mishap rate of 6.13 mishaps per 100,000 flight hours), and at the same time our highest rates ever in full mission capable (FMC) and mission capable (MC) aircraft. In short, we are more combat ready than ever and we are conserving our valuable assets. We have been delivering new weapons systems to the Fleet Marine Forces and these systems are meeting or exceeding all of our expectations. I would like now to address several aviation programs of particular importance to the Marine Corps.

As in past years, the AV-8B Harrier program remains the key element in the Marine Corps' modernization of its light attack force. The Harrier program is proceeding with four Full Scale Development (FSD) aircraft in flight test at this time, and we are about 60 percent complete with the full scale development effort. Performance improvements that have been identified during preliminary evaluation are being installed in test aircraft and will be incorporated in all production blocks. Test results to this point have been encouraging and we are confident that the AV-8B will fully meet our expectations. The first limited production AV-8B will be delivered to the 2d Marine Aircraft Wing in November 1983.

To safely and efficiently transition to an all V/STOL light attack force, the Marine Corps needs a modern two-seat trainer version of the AV-8B (TAV-8B). My predecessor, Lieutenant General WHITE, stated in his remarks to Congress last year (Senate Appropriations Committee, 27 May 1982), "...we fully intend to fund development of this two-seater AV-8B, (i.e. both) the procurement cost and development, from the total 336 aircraft program, which means we are prepared to trade single-seaters for two-seaters." The Marine Corps intends to stay within planned program cost. The TAV-8B is a low risk technical development, and it can be delivered in time to meet our peak training demand which begins in 1986. With your continued support for both the AV-8B and the TAV-8B versions of the advanced Harrier, we should attain our goal of an all V/STOL light attack force which will give us a unique capability for close air support of our ground Marines.

The modernization of our fighter-attack (VMFA) force is also progressing very well with the fleet introduction of the F/A-18 Hornet. After completing transition training with VFA-125, our joint Navy-Marine F/A-18 training squadron at NAS Lemoore, VMFA-314, stood up on 7 January of this year at Marine Corps Air Station (MCAS) El Toro, California. VMFA-323 and VMFA-531 have also transitioned to the Hornet and all three squadrons are currently conducting operational training at El Toro.

The F/A-18 will provide Marine Aviation a significantly enhanced combat capability over the aging F-4 it replaces. In both the fighter and attack roles it has already demonstrated clearly superior handling, performance, and weapon delivery accuracy. Further, the reports from our tactical squadrons and VFA-125 indicate that not only does the aircraft have the superb qualities previously mentioned, it is an easy aircraft to learn to fly. This should result in our aircrew becoming comfortable and competent in the aircraft more quickly than with most previous aircraft. Additionally, all reports indicate that the aircraft is equaling or exceeding reliability and maintainability specifications, a welcome report to the Marine Corps and all of Naval Aviation.

Of continued importance to the Marine Corps is the all weather close air support (CAS) capability of the A-6E. Even after 18 years of outstanding service to Marine Aviation, the A-6 remains unsurpassed in its ability to provide effective close air support to our ground Marines in all weather conditions day or night. The A-6E TRAM with its Forward Looking Infra-Red (FLIR) and Laser Designator Ranger (LDR) has a proven capability to provide both night and all weather close-in interdiction and CAS ordnance delivery, which further demonstrates its superior capabilities as a weapons platform.

A relative, the EA-6B, is the free-world's best electronic warfare aircraft. We currently operate a 15 plane EA-6B squadron at Cherry Point, NC, with detachments deploying both aboard aircraft carriers and to the Western Pacific. In

view of the growing Soviet SAM and fighter threat, the importance of this aircraft grows daily. The continued procurement of the FA-6B is vital to ensure our success on the modern battlefield.

Our CH-53E Super Stallion heavy lift helicopter continues to prove its worth every day. We now have two complete 16 plane CH-53E squadrons, one at MCAS(H) Tustin, California and one at MCAS(H) New River, North Carolina. In FY84 we plan to introduce the CH-53E into a training squadron, and in FY85 a third tactical squadron will be activated. By all accounts, the CH-53E is an outstanding operational success; its performance is exceeding our original expectations. In training, both CH-53E squadrons have routinely lifted 14.5 ton practice loads and have regularly supported our Marine ground units at Camp Pendleton, California and Camp Lejeune, North Carolina. In operational tests, the aircraft has demonstrated its capability to lift 16 tons. This past year the CH-53E accomplished the very demanding task of lifting several Light Armored Vehicle (LAV) candidates in operational tests conducted at the Marine Corps Air Ground Combat Center (MCAGCC) at 29 Palms, California. The 11 CH-53Es requested in FY84 will form the nucleus of our third tactical squadron. Three squadrons will minimally meet our current heavy lift requirements for ship-to-shore movement of the M-198 Howitzer at 8 tons and its prime mover at 12.5 tons.

Another helicopter program of considerable importance is the AH-1T Cobra. The one year slide in the procurement of 44 additional Cobras (22 aircraft in FY85, 22 in FY86) compounds an existing shortage of anti-tank, attack helicopters in both our active and reserve Wings. At present we have two active AH-1T squadrons and one active AH-1J squadron. The Programmed Aircraft Allowance (PAA) for each of these squadrons is 24 aircraft, however our AH-1T squadrons are currently operating with only 21 aircraft each. Although our active force AH-1J squadron has 24 aircraft, at present it lacks any anti-armor capability. Our reserve AH-1J squadron has a PAA of 24 aircraft, but only has eight aircraft assigned. The long lead funding of $17.8M requested in FY84 is vital to ensure our procurement of 22 AH-1T's in both FY85 and FY86. These aircraft will permit us to flesh out our anti-armor capability to three active AH-1T and one reserve AH-1J squadrons, and constitutes an important step toward our goal of 6 active and 2 reserve attack helicopter squadrons. Of additional concern is the requirement to upgrade the engines of our existing AH-1T aircraft. The assumption of the anti-armor mission and the weapons required (TOW, etc) to accomplish this mission has driven up the empty weight of the Cobra. At present, on a hot day at 3000 feet of elevation (a situation common to many Middle East contingency areas), with a full load of anti-armor ordnance and fuel, the AH-1T is incapable of hovering out of ground effect. Hovering out of ground effect is required to fire the TOW missile. The capability enhancement which can be gained by the incorporation of a T-700 engine package is remarkable for the small investment required. With the T-700 engine package, a fully loaded (ordnance and fuel) AH-1T Cobra can hover out of ground effect at terrain elevations of 3000 feet above sea level, even at temperatures above 90°F. The serious threat posed by Soviet armor clearly demands that our capability be upgraded quickly.

Our remaining helicopter force, composed of CH-46Es and CH-53A/Ds, is aging rapidly, and our declining inventory is of great concern. Due to the effects of inadequate performance capabilities and of peacetime attrition, the aging CH-46 and CH-53A/D force lacks the ability to meet our assault lift requirements for the 1990's and beyond. As a replacement aircraft the Joint Services Advanced Vertical Lift Aircraft (JVX) provides for a 250 knot assault transport that is self-deployable worldwide. Our urgent need for the JVX stems from our requirement both for modern replacements for the current force and for the need to avert the critical lift shortfall that would occur were JVX not introduced in 1991. Capable of lifting 24 Marines up to a 200 nautical mile mission radius, the JVX will have the ability to rapidly penetrate deep into enemy rear areas, and to bypass adverse terrain and weather threats. R&D funds requested in FY84 are important to maintain our development schedule which will lead to delivery of the first JVX to the Marine Corps in 1991.

In view of the magnitude of the Soviet armor threat, Marine Aviation has directed a great deal of attention to Precision Guided Munitions (PGM's) which can successfully engage enemy armor at stand off distances. Hellfire and Laser Maverick are two such weapon systems that can meet the threat head-on and defeat it without unacceptable attrition of aircraft.

Hellfire is the new PGM weapon being procured for use by our attack helicopter force. Hellfire represents a major improvement over the TOW system. Whereas the TOW missile requires the helicopter to remain vulnerable while the missile is guided in flight, the laser guided Hellfire permits a shoot-and-leave operation. The tank or other armor target can be laser designated by the ground force commander and, after the Hellfire is fired, the helicopter can depart before entering the enemy's anti-aircraft kill zone. Hellfire, with a FY86 IOC, will provide the ground commander with a much needed increase in tank killing punch.

Laser Maverick, our PGM choice for the close air support mission, will afford the same type of aircraft survivability for our AV-8B, A-6F, F/A-18 and A-4M aircraft. Laser Maverick, with its unique 300 pound warhead (the largest of any U.S. anti-tank PGM), offers outstanding target lethality and is optimized for the close air support environment. The key element in the optimization of Laser Maverick in the close air support environment lies in the Modular Universal Laser Equipment (MULE), which permits the ground commander to both select and designate the greatest threat to his unit. Even a near miss with Laser Maverick will damage both hardened surface targets and the most heavily armored Soviet tanks. Laser Maverick permits not only the shoot-and-leave option, but also provides the crucial margin of safety for friendly troops in close air support operations. Testing to date has been impressive, with 15 successes in 15 shots. Our planned IOC of FY85 still looks solidly achievable.

Modernization efforts are progressing as well in our air defense capability. Tactical Air Operations Center-1985 (TAOC-85) is a modular, state-of-the-art, real-time air control system that will manage airspace and coordinate, as well as control, both interceptor aircraft and surface to air missiles. The modular design of the system will greatly increase its mobility and reduce strategic air/sea lift requirements. Operational evaluation of TAOC-85 will commence in 1984, with a planned IOC of 1988.

To match the air control capabilities of TAOC-85 we are procuring in FY83 the AN/TPS-59 Radar to give us a long range, three dimensional air defense surveillance radar. The TPS-59 is considered to be the world's finest air defense radar. It possesses superior ECM capabilities, improved reliability and maintainability, and an overall unsurpassed performance.

Up till now I have addressed primarily our active duty forces; however, our modernization efforts have also begun to yield substantial dividends for our reserve components. For example, the introduction of the AV-8B into our active force light attack squadrons will result in the transfer of the A-4M aircraft and Laser Maverick missile to the Reserves; the first A-4Ms have just arrived in our reserve force. This type of crossover effect is also true for the AH-1T which will free up AH-1J aircraft for transfer to the Reserves. As we improve our active Marine Aircraft Wings (MAWs), we also improve our Reserves Wings as well, and the dividend to the national defense posture is magnified. Additionally, the Congress has provided for four KC-130T aircraft (FY82 procurement), which are scheduled to join our Reserves during Oct-Dec 1983. These will be followed by two more in the FY83 procurement.

I would like to thank the committee for its strong support over the past year. With your help, we are embarking on an era of modernization that will allow us both to maintain our readiness and to enhance our capability to meet the modern threat.

This concludes my formal remarks. I am ready to answer any questions. Thank you.

GAO REPORT

Senator STEVENS. Thank you very much.

Do you have any comments, admiral?

Admiral BUSEY. No, sir.

Senator STEVENS. We take very seriously the GAO report that has been given to the Air Force and the Navy that indicates that the buy on aircraft is far in excess of the number needed to meet the goals. Specifically, GAO has told us that the two services have programed more than 700 too many F-14's, F/A-18's, F-15's, and F-16's, and that the forces also are programing excessive training, maintenance, and attrition requirements. The GAO report indicates that more than $21 billion would be unnecessarily spent in the total procurement program.

Now, I know that you have indicated you do not agree, but is there any room for agreement with any part of the GAO report?

Admiral SCHOULTZ. The reason we do not agree, Mr. Chairman, is that every year we go back and look at the structure of every program. We are allowed by DOD regulations to go up to 25 percent for training, for example. We look at each program to determine what our real needs are each year. We analyze attrition the same way. We are allowed 25 percent before DOD is concerned about it.

In our F/A-18, we are using 21 percent and 13.5 percent for pipeline. Our attrition rates are determined in the F/A-18 by looking at four other airplanes that were previously built to try and determine what attritions rates should be. The same process is used for pipeline to determine how many of them are going to be in overhaul. We have 13 percent in pipeline for the F/A-18. We feel that we make a very determined analysis of our numbers, and it is reviewed every year. We are confident we can substantiate those figures.

And as you know, as you have indicated, we did not agree with the GAO report

GAO REPORT—LOWER ATTRITION SAVINGS

Senator STEVENS. In your opening statement you pointed out the savings of the lower attrition rate.

How do those savings reflect into our budget? If the savings really are working as you indicate they are, and there is a massive savings from the lower loss rate and the lower attrition rate that you have got, why should we not cut down the procurement account?

Admiral SCHOULTZ. It will be, sir, but it will not be immediately. It will not be in the next year's budget because it takes 2 years from the time you buy an airplane before it is in service.

Senator STEVENS. But according to your statement, you have four more planes in the flight line than you would have expected to have there this year.

Why do we have to replace those four planes?

Admiral SCHOULTZ. Well, we will not have to replace those planes.

Senator STEVENS. Well, that is obvious. When are we going to get—I understand they probably push you a little too hard. The 700

figure is probably fairly high, but it does seem to me that when you take credit for the savings—and we congratulate you on that lower operational loss rate—that those have got to be reflected into the budget, and they are not, even the maintenance requirements.

I have sat here and listened to the justification for some of these new aircraft on the basis that the maintainability and reliability of these new versions was so high that there would be cost savings effective for the taxpayers if we went into these new aircraft. But as we get the budgets, the budgets are higher for operation and maintenance, even with the new aircraft.

When are we going to see the savings that were projected as far as maintainability and reliability?

Admiral SCHOULTZ. Well, that comes each year, and the maintainability and reliability is a little different than attrition.

GAO REPORT—TRAINING

Senator STEVENS. I understand, but there are four components to the GAO report: training, they say you have got excessive training; you have got excessive maintenance; you have not taken into account your improvement in attrition rates; and you are not taking into account the improvement in reliability of the aircraft, the new versions of the aircraft.

Now in those four categories you argue with the GAO entirely and say they are not right on any one point, as I understand it.

Admiral SCHOULTZ. Well, the big thing is, Mr. Chairman, we are expanding our forces. We are building a 13th airwing this year and a 14th airwing in 1987. We will continue to require aircraft. If you do not need them, you cut off your attrition buy at the end of the procurement program. So it will be some years before you see the savings in attrition.

Each year we analyze what our requirements are for parts and support, and that savings should be reflected as we get the new airplanes into the fleet. But we are only operating three squadrons of F/A-18's at the current time, and the Marine Corps is operating them.

It is going to take us a while, but the long-term savings will be there. But they will not show up this year.

GAO REPORT—SATURDAY FLIGHTS

Senator STEVENS. Well, the GAO report points out that if you used Saturday flights, you would increase your utilization of your existing aircraft. What is wrong with that?

Admiral SCHOULTZ. Use what, sir? I am sorry.

Senator STEVENS. Saturday training flights. With operational aircraft, if you used them for training on Saturday flights, you would get more utilization, increase your utilization of your existing aircraft.

Admiral SCHOULTZ. We are currently flying the airplanes almost to the limit, and the monthly program, as you know, we are restricted in flying hours. Our flight hour budget has been continually under attack that we are flying too much. We really do not have a problem utilizing the airplanes. In fact, we fly them up to the maximum using them 5 days a week.

Senator STEVENS. I would like to see the comments.

Have you made comments on the GAO report?

Admiral SCHOULTZ. Yes, sir, I think they have been submitted through the system, and I do not have them with me, sir.

We will provide them for the record.

[The information follows:]

GAO REPORT

Upon review of the official transcript it has been determined that the Department of the Navy has not received the aforementioned GAO report and therefore no comments can be provided. At such time that the report is received and official Navy comments prepared, a copy of those comments will be provided.

Senator STEVENS. Senator Rudman?

Admiral SCHOULTZ. Rear Admiral Gillcrist who testified before on this has some current data. Could he address part of your question, sir?

Admiral GILLCRIST. Yes, sir, I have my statement which I made to Chairman Brooks. I will give you that to enter into the record, if you would like. It addresses some of the things. Chairman Brooks pointed out that in our fleet replacement squadrons, we fly on Saturday about half the time anyway, just to catch up and to do the kind of maintenance we need to do. So that particular part of the GAO report we object to.

And the attrition buys, we also find fault with the GAO report on that line. We average the attrition for the last 5 years and then project that for the following year on each different kind of airplane, and then that is updated annually. So we think that we have a pretty good handle on the amount of attrition airplanes that we need to buy in the subsequent year.

In the case of the pipeline airplanes we do the same thing. We calculate the time it takes a particular airplane to go through overhaul. We update those numbers each year because they change. Across the board, I think we do a little bit better than the numbers we are allowed by the DOD in that regard, sir.

[The prepared statement of Admiral Gillcrist follows:]

PREPARED STATEMENT OF REAR ADM. PAUL T. GILLCRIST, DIRECTOR, AVIATION PLANS AND REQUIREMENTS DIVISION

Mr. Chairman and members of the committee, I am pleased to testify today on the requirements determination process for aircraft intended for noncombat missions, such as fleet replacement pilot training, peacetime attrition, and backup inventory for depot level maintenance.

As you know, there have been a series of internal Department of Defense Inspector General and General Accounting Office reports which have been generally critical of the service's justification for aircraft procurement to support these noncombat requirements. These reports have cited the potential for large savings by reducing the number of aircraft to be procured to meet these requirements over the life cycle of the weapon systems which were audited.

While the Navy, in general, is in disagreement with many of the findings and conclusions in these reports, the Navy, in fact, is essentially in compliance with the reports' basic recommendation that the services provide justification for planned procurement based on current and realistic data. The Navy annually updates all factors utilized in estimating noncombat aircraft requirements, and has been doing so since well before the initial GAO audit in 1977. These factors, when integrated with force structure and bounded by fiscal resources, generate a proposed aircraft procurement plan which is validated at every level of the budgetary review process.

Procurement of nonessential aircraft is not possible given existing levels of unfunded service requirements. In fact, the Navy has been unable to procure aircraft

at a rate sufficient to offset normal attrition and retirements, which has resulted in a continued increase in the average age of the force. Between 1978 and today, the average age of the entire inventory increased from 9.8 years to 12.4 years. The average age of tactical fighter and attack aircraft similarly increased from 8.4 to 11.1 years during that 5-year period. This situation is projected to continue until the late 1980's when requested outyear budget procurement finally overcomes the trend.

The reports emphasize the fact that the services do not utilize uniform methods and planning factors to compute the noncombat aircraft requirements. The Navy believes its methodology is well founded and fully supported with actual data which is annually updated. However, if other methodologies can be shown to provide better estimations of requirements, the Navy would be more than willing to utilize them.

The reports also address the potential savings resulting from the reduction in aircraft procurement over the life cycle of the weapons system. It must be noted that these savings, if any, would occur in the final stages of the aircraft procurement program, which in the case of the F-14 and F/A-18 would occur in the mid 1990's. To reduce the near term procurement would increase unit price, and, in fact, increase total program cost.

There is one additional aspect of the issue of tactical aircraft procurement requirements which should be addressed, and that is the relationship between peacetime and wartime requirements. It is present DOD policy not to procure combat attrition replacements, that is, war reserves of ships and aircraft. Therefore, the services will fight the war with the inventory on hand since it now takes 2 years to produce a typical tactical aircraft. Therefore, combat sustainability must be a consideration even though procurement must be justified on peacetime requirements. For example, increasing the peacetime utilization rate with a corresponding reduction in the number of aircraft assigned to the fleet replacement squadrons, as suggested in the reports, would eliminate the surge training capacity which would be required on mobilization. As DOD previously stated in a reply to the last GAO report, "minor changes in the accounting rules governing peacetime management of our tactical inventory can in no way compensate for the wartime reality that fewer aircraft means less capability."

In summary, the perceptions of just how many aircraft are required to meet the needs of each tactical program have often varied among Congress, DOD, the services, and GAO. In some programs the criticism has been contradictory. None the less, the Navy places considerable emphasis on the use of current and realistic data in structuring procurement programs which support tactical aircraft requirements. These peacetime requirements are fully justified to DOD in the budget process on an annual basis. I solicit your continued support of naval aviation procurement programs which are essential to the Nation's maritime strength.

CARRIERS IN INDIAN OCEAN

Admiral SCHOULTZ. I would like to comment, I wonder if the GAO spent any time on the carriers in the Indian Ocean. I can guarantee they are flying Saturdays, Sundays, days and nights, around the clock.

Senator STEVENS. I am talking about trainng. But I appreciate that. We will take the statement for the record, and we will analyze it. I notice both the authorization and the House Committee have made some adjustments in this account.

But you mentioned the pressure on your flying hours comes because we have the procurement account so high. With the budget ceiling so high, we have to give. I think the flying hours have given too much, and we ought to have an increase in your flying hours as far as these bills are concerned, particularly now that we are getting the new equipment. But we cannot be buying excessive amounts of new aircraft and maintain the flying hours when we have a budget ceiling. It is a simple matter of arithmetic with us.

We do have that budget ceiling to deal with, and it is much lower than projected at the time you made this budget.

Senator Rudman?

Senator RUDMAN. Thank you, Mr. Chairman.

I could not agree with the chairman any more, that we really look at this entire bill we are looking at. Many of us feel rather nervous about some of the amounts in the readiness accounts. They seem to have quite an imbalance in the procurement accounts.

My question this morning, Admiral, will be directed to not questioning the missions you have to accomplish but just discussing with you, if I may, for a few moments, some of the choices that you have made, and try to get some justification for the choices.

ECX

I have three areas I would like to talk about this morning in our fairly limited amount of time. I wonder for the record this morning, we might just discuss the replacement program for the EC-130 Tacomo.

Now, nobody questions that we have got some serious problems with our communications with our nuclear submarine forces. You have chosen to go ahead with the new platform, the ECX, which is a modified 707. The figures that I have, the present option of purchasing between 15 and 20, the figures cited in the RFP, are at a cost of about $2.1 billion to $2.5 billion.

Now, I would just like to talk about the cost effectiveness of that particular decision because according to the information that I have looked at, of course, speed is hardly the driver, if you will, of this particular aircraft. Speed is not of vital importance, as I understand it.

Admiral SCHOULTZ. It is of importance, but not of vital importance.

EC-130 ELECTRONIC UPGRADE

Senator RUDMAN. Range is important, ability to carry the equipment is important. There has been some discussion that we might upgrade all of the electronics on the present EC-130's possibly by up to five new aircraft for about $800 million, and come out with a savings of about $1.3 billion as opposed to going ahead with the ECX as the Navy is currently planning.

I wonder if you might discuss that issue for a moment.

Admiral SCHOULTZ. Well, in our opinion, the EC-130 upgrade and the procurement of more EC-130's would not do the job in the outyears. With the new *Trident* submarines, we need to get more range, we need to get more endurance. I am having trouble staying out of the classified part of that strategic system. I can supply a classified briefing for you, sir.

The power that is required to do the job is not going to be available in the near future in the EC-130's. Our decision to go with the ECX is based on making an upgrade to the AWACS aircraft or the E-3A. The Air Force has already paid so much of the nonrecurring costs to have it EMP hardened. It has a lot of upgrades, and we are going to do more to it with some engine upgrades. The equipment and the particular mission requirements are getting into the classified area.

The program has been analyzed three different ways. Earlier this year when we heard the objections we went back and looked at it

again. In the long term it is more cost effective to go on with the ECX than to continue to buy aircraft that will not do the mission and have a short service life.

Senator RUDMAN. When you say it will not do the mission—and the answer to this is classified. We can talk about it in another way at another time—is this a problem of endurance?

Admiral SCHOULTZ. Yes, sir, that is part of the problem.

Senator RUDMAN. Pardon me?

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. Something else?

Admiral SCHOULTZ. Yes.

Senator RUDMAN. That you would rather not discuss in open session?

Admiral SCHOULTZ. Yes, sir, I cannot discuss it. It describes a particular mission, the way it is employed, to transmit the information.

Senator RUDMAN. Then I would think, Admiral Schoultz, that I would like to in an informal meeting with any one of your staff who understands what that is all about. When we start looking at modes and options of what we are going to do, you look at a choice that is—I understand the outyear problem. Unfortunately, we have to deal with it on a year-by-year basis, and if we see an option that is $1 billion to $1½ billion less over a 4- or 5-year period, those of us who really are trying to get more money into the readiness accounts to do the kind of training and flying, and I agree with the chairman completely. We tend to look at things like that because 10 years from today, well, someone else can wrestle with the problem on both your side and ours.

We have some budget figures to deal with right now.

Admiral SCHOULTZ. I understand, sir. We will get somebody to brief you on that detail because it is important, and it is critical to the ECX procurement decision.

F/A-18

Senator RUDMAN. Let's get on to something that is very sensitive with the Navy and with this committee, that is, the F/A-18.

We are on the edge of embarking on a major procurement program, and we are in it. I would like your assessment of it. I understand what the General said about the Marines' outlook, and I have talked to some of the marine pilots. I have seen that aircraft, and there is no question in the mode that he is talking about, I could not disagree at all.

But in terms of this attack mode as opposed to the A-7, I would like your comments about that because I know the Navy internally has had some serious doubts about it.

Admiral SCHOULTZ. I do not know where those doubters are, Senator. I am not one of them because I think the aircraft is a dramatic improvement, and the people at Lemoore agree. I might let Admiral Busey, who was the wing commander at Lemoore and had the A-7's and introduced the F/A-18 to the area, give more detail.

But anybody that feels that the A-7 is a better aircraft than the F/A-18 has not been exposed to the aircraft. Its survivability, its maintainability, its reliability, its performance, in every area, with

the exception of a small portion of range are dramatic improvements. We are learning to use that aircraft and get a range that is very, very comparable to the A-7.

Would you like to say anything, Jim?

Did you find anybody that doubts the F/A-18?

Admiral BUSEY. The community is completely enthused, including the squadrons who now fly the A-7's. They are eager and ready to make the transition into the new aircraft because they finally see the ability to fight their way in and fight their way out and survive to do it again.

F/A-18 RANGE

Senator RUDMAN. I have found something that I think is fairly reliable. That is your own operational and task command down in Norfolk. Now, I am not going to get into any classified information here, but let me just read to you generally a paraphrase of some of that information.

They stated less than 6 months ago that as a replacement for the A-7, the F/A-18 unrefueled operational capabilities gain do not offset capabilities loss. They went on to say that attack aircraft are the main battery of the battle group and light attack aircraft comprise a substantial portion of that main battery. They further said that replacing the A-7 with the F/A-18—and they were looking at it with its present range, and that is what I want to hear your response to—will constitute a reduction in battle group standoff range from the enemy.

They went on to say that this loss in range will appear at a time when the Soviets are introducing their SS-N-2 and their SS-NX-19 surface-to-surface missiles with very substantial range, and this is going to put the fleet in a position of much greater vulnerability in terms of standoff range.

They went on to say that they felt that the tradeoff, because of this one factor, although it is only one factor, of bringing the fleet into range of that new Soviet threat, raised some very serious questions.

Now, I do not argue at all about the capability of that aircraft in terms of its tactical capability when it gets there. The question is what kind of risks are we putting the carrier battle group at by going with it unless you have a major fix for the range problem, which according to your own internal test and evaluation seriously jeopardizes the fleet in terms of your own tactics.

I would like your response to that.

Admiral SCHOULTZ. We can fly that aircraft, of course, at any range, depending on how much tanking and fuel you have. As a matter of fact, you can fly it around the world.

PILOT FLYING TIME IN VX-5

Senator RUDMAN. That is the point that your own people brought up, Admiral Schoultz. They talked about in the normal combat unrefueled mode.

Admiral SCHOULTZ. That is true. We have been doing some additional flying with the aircraft. We have learned a lot of things

about how to operate it. The VX-5 pilots who were—and I testified to this too—they also were not experienced in the aircraft.

Some of them had as little as 30 to 50 hours in the aircraft. Now, just to give you an operational example, in the profiles that they flew, they made an idle descent, which we normally did in the A-7, but it is a different engine. When you do an idle descent in the F/A-18 the afterburner tailfeathers go to an extended position, so now we find that to make a descent in that aircraft, you push the engine up just beyond idle, the tailfeathers close, and we get up to 35 miles more range in a descent. But we had to learn that. They were just starting to learn about the aircraft.

The VX-5 people are flying the airplane now in different profiles. We are flying their test pilots with the training pilots that Admiral Busey was working with in VFA-125. They are finding the profiles and the ranges are not that significant, plus the fact the battle group commander is not going to bring the whole battle group in to fly everything in close. You will use your long range aircraft, the A-6, to go in with the smart weapons, and you will take some of your F/A-18's along to be defense-suppression aircraft.

F/A-18 ADVANTAGES

But actually, if you took our aircraft and flew them at the same range without refueling, they would be limited by the shortest leg aircraft. And of course our F-14 fighters have a difficulty going to any great range and are the limiting factor. We refuel them if we need to take them farther. The F/A-18 can escort itself, which is a great advantage.

One of the other great advantages of the F/A-18 is its increased capability in taking off from a carrier with weight. The A-7 is temperature limited. We found, in Vietnam for example, that we had to download fuel and refuel the A-7's in the air because they could not take off with all the weapons. This is because of the way the engine is designed.

One of the great advantages of the F/A-18 it its capability to escort itself, to be its own protection and increase the survivability of the group, if you will. We can use it in a fighter role. If you have an air superiority problem, you can increase your fighter capability. If you have a bombing problem, you can use it as a bomber.

One other thing we have found in carrier operations is if you have an aircraft that has a single mission, such as the F-14 which is an air-superiority fighter, it really takes up a lot of deck space that you need for a lot of things. The F/A-18 is the first example of an aircraft that we can use for a fighter and then use it for attack also. So you make every foot of deck space pay off.

F/A-18 CRITICISM

Senator RUDMAN. I will only read one summary statement to you and just ask whether you presently agree with it or disagree with it, and then tell me why.

The statement is simply this: "Replacing the A-7 with the F/A-18 will constitute a reduction in battle group standoff range from

the enemy and/or a reduction in ordnance delivered per aircraft on the target with no measurable increase in accuracy."

Admiral SCHOULTZ. Sir, I disagree with that.

Senator RUDMAN. You disagree with that?

Admiral SCHOULTZ. Absolutely.

Senator RUDMAN. Well, of course, Mr. Chairman, the Admiral well may be correct, but as we learned on the floor of the Senate several weeks ago, there is a great debate going on in this whole area concerning operational tests and evaluation.

What I have quoted from—and I have not quoted it in depth, and I have been very careful to consult with people as to what I would talk about this morning—is a report you are very familiar with.

Admiral SCHOULTZ. Yes, sir.

F/A-18 OT&E

Senator RUDMAN. And that is I think a farily serious indictment of some of the mission capabilities of the F/A-18. It was done by people who were put there because they are good. They are in charge of the Navy's operational test and evaluation.

Granted, it was done at a time when there was a learning curve still going on about the aircraft. But it raises the question as to whether or not this is an instance or not, whether the Navy and the Air Force and the Army pay enough attention to what your own operational test and evaluation people tell you. And, to quote one of my colleagues on the floor, it is a lot like a student grading his own exam.

I would say to you that I would like more information about the one area where we are all concerned. That is, what the operational range of this is and whether or not there is going to be some fix, what you have learned, what has changed since that report.

I am not saying they are right and you are wrong, but you sit where I am sitting——

Admiral SCHOULTZ. Surely.

Senator RUDMAN. And I look at a report like that and then hear you testify here, and frankly, I do not know what to do, who is right and who is wrong, what facts changed and which facts are going to change.

And I think frankly, Mr. Chairman, that this is something we ought to get into, because if we go to this system and we buy the full buy and we take the A-7's off these carriers and we get into a situation where we have to use them, I sure hope Admiral Schoultz is right and the OT&E people are wrong, or else we are going to have an awful lot of stuff that is not going to be very useable.

Admiral SCHOULTZ. Senator, if I could say one thing. The OT&E people did us a real service and they do a tremendous job. If you look at the whole list of things they found wrong with the aircraft, we have gotten almost all of those fixed. We are fixing the things in the aircraft that they pointed out.

Senator RUDMAN. The only one I have mentioned this morning is range, Admiral. I have checked them all and they have all been fixed, but that is the one that remains.

Admiral SCHOULTZ. Well, you know, that is a subjective question: How much is enough range? Can you imagine what this discussion

would have been when we were transferring to the A-4 from the AD?

Senator STEVENS. But you are transferring from the F/A to the F/A-18 and the 7 has the range.

Admiral SCHOULTZ. Yes, sir. But how much is enough?

Senator RUDMAN. I think that depends on what the threat is and what the standoff range has to be. I am surely not an expert at that, Admiral, and never will attempt to be. But that is certainly something you folks really ought to be getting back to us on and reassure us if there is some reassuring to do.

Admiral SCHOULTZ. Yes, sir.

Senator RUDMAN. We are not the people who ought to be reassured. The people who are going to run the battle groups ought to be reassured.

Admiral SCHOULTZ. Absolutely. That is really my point. You know, we have decided that the range of the F/A-18 is enough. That report got into subjective areas in stating that it was not enough. Why? Because it was not as much range as the previous one.

Go back to the example of the A-4, which we used for many years, and compare that with the AD which it replaced. The range is almost one-half of the previous one. Somebody decided it was enough and we fought a darn good war with it.

We have given you one example. We could give you some other examples.

Senator RUDMAN. I would like you to do that.

[The information follows:]

F/A-18

Aircraft range, as it translates into combat radius or effective striking distance, is one of many attributes required of carrier tactical aircraft. Others are: maneuverability, weapons system accuracy, versatility, reliability, maintainability, survivability, carrier suitability, and deck multiple or size.

When the original requirement for the VFAX multimission aircraft that became the F/A-18 was developing, a certain threat environment was assumed. This threat occurs on two levels, one is to the carrier battle group and the second to the aircraft. The threat to the battle group can be neutralized by remaining out of range, providing adequate defense, or launching preemptive strikes. The threat to the aircraft can be minimized by employment of stand-off threat suppression weapons, maneuverability, self escort capability, ECM equipment, and survivability attributes.

The F/A-18 design provides superb performance and maneuverability with two afterburner equipped engines. In order to remain within deck multiple constraints, the size of the aircraft limited the amount of internal fuel that could be carried. This allowed more aircraft to be accommodated on the carriers but provided less unrefueled combat radius than the A-7 in equal configurations. In making the decision to procure this aircraft to replace aging inventories of F-4's and A-7's, this compromise is not difficult to accept. All who have studied the Hornet in depth agree that it is a superb strike fighter aircraft with multimission flexibility. Performance in the target area is superior. As you have said, the only issue is combat radius and its effect on battle group operations.

In analyzing this, we must consider the increased capabilities the F/A-18 brings to the battle group and the missions it will perform. Earlier it was mentioned that, other than staying out of harm's way, the only way to neutralize a threat is adequate defense or preemptive destruction. The F/A-18 enhances air defense capability in two significant ways. It can augment the F-14 in the outer air battle, providing added defense-in-depth or more area coverage. During power projection it can provide fighter escort and threat suppression for A-6E's and other strike-configured F/A-18's. This allows the F-14's to concentrate on fleet air defense. During the early phases of battle group operations, there are many reasons for maintaining a maximum distance from the threat. As the scenario develops the longer range

threat will be neutralized through attrition or power projection strikes, thus allowing the battle group to close the objective area. It is during this early phase that long range strikes may be required. These can be conducted at night or in bad weather by A-6E's and at other times by combined flights of A-6E's and air refueled F/A-18's. It should be noted that any strike anticipating air opposition must be provided fighter escort. Combat radius is, of course, limited to that of the fighter escort. The F/A-18's escort radius is comparable to current fleet fighter aircraft.

In comparing the F/A-18 as a one-for-one replacement for the A-7E, a critical factor is often left out of the discussion. The A-7E is not maneuverable enough to be effective in the anticipated threat evnironment. If sent into combat, the A-7E is not likely to carry external fuel for this reason, nor will it be loaded with great numbers of bombs. The F/A-18, configured with two external tanks, 5000 pounds of air-to-ground ordnance, four air-to-air missiles and a full 20MM cannon, is much more maneuverable and effective than an A-7E even without external tanks. The key factor here is, configured as I have just discussed, the combat radii of the two aircraft are comparable. As you can see from this analysis, the Hornet enhances both the air-to-air and power projection striking potential of the carrier battle group. It is the only aircraft in our inventory with this versatility. Of all the desired attributes of an effective carrier based tactical aircraft discussed earlier, the F/A-18 is superior in all but one. This one, unrefueled combat radius, is the easiest to accommodate by the addition of external fuel tanks or air refueling. A combination of both of these routine techniques can provide virtually any combat raduis deemed necessary. It is the Navy's considered position that the F/A-18 will greatly enhance the overall effectiveness of the carrier battle group and that the combat radius of the Hornet is adquate for the strike fighter mission.

The exceptionally thorough operational evaluation conducted by the Commander, Operational Test and Evaluation Force, made recommendations to the CNO after comparing the F/A-18 to the F-4 and A-7 as one-for-one functional replacements. His report supports the conclusion that the F/A-18 is more effective than the F-4 and more effective than the A-7 except for combat radius. The report states that, if adequate refueling assets are provided, the F/A-18 will be more effective across-the-board than the A-7E. We have responded to this evaluation by developing corrections for technical deficiencies. This included increasing the maximum gross weight for catapult launch from the 46,000 pound limit which applied during the OPEVAL to the current 51,900 pound limit. This significantly increased the ordnance or fuel available. We will ensure that adequate air refueling assets are provided to deploying airwings to accommodate the increased requirement of the F/A-18. The Navy is proud of the role filled by our independent test and evaluation units. We are responsive to their recommendations and do not subscribe to the notion that the student is grading the exam. In the case of the F/A-18, the quality of the end product reflects this.

SENIOR NAVAL AVIATOR

Mr. Chairman, I have great respect for Admiral Schoultz. I have looked at his record. He is the most senior naval aviator on active duty today in the U.S. Navy. So I take your word for it.

Admiral SCHOULTZ. Not quite the oldest.

Senator RUDMAN. Not the oldest, but the most senior naval aviator.

Admiral SCHOULTZ. The longest designed.

Senator RUDMAN. 1945.

Admiral SCHOULTZ. I am hanging on to those two other guys that are older than I am.

Senator RUDMAN. We respect your opinion a great deal. But there is a serious question in this area in the minds of many of my colleagues and I thought this would be a good place to bring it out this morning.

Admiral SCHOULTZ. Yes, sir, Senator.

Senator RUDMAN. We would like some more information.

Mr. Chairman, I have other questions, but I will submit them for the record.

Senator STEVENS. Quit making me feel old. I quit flying about that time. [Laughter.]

GAO—OVERSTATEMENT OF REQUIREMENTS

Senator STEVENS. The Navy's proposal to suspended the F-14 and A-6 production and the GAO comments sent to me about the overstatement of aircraft requirements come to about the same conclusion for different reasons. Now, that conclusion to us is that the production of the F-14 and the A-6 can be suspended without major adverse operational impact on the budget. It that right?

Admiral SCHOULTZ. The GAO said that?

Senator STEVENS. No; there you have an overstatement of your aircraft requirements; that the Navy has proposed to suspend F-14 and A-6 production. Is that not right?

Admiral SCHOULTZ. That was discussed, Mr. Chairman, but I cannot say that is a proposal.

Senator STEVENS. Well——

Admiral SCHOULTZ. I think where we are in difficulty——

Senator STEVENS. You have no funding in your 1985 program for 1986 to 1988 funding of the F-14, or 1986-1987 funding for the A-6. It that right?

Admiral SCHOULTZ. Are you talking about our POM submission to OSD, sir?

Senator STEVENS. Yes.

Admiral SCHOULTZ. I cannot really discuss that, because of course that is just a POM proposal. I think it is a long way from what you are going to see when the budget comes over.

F-14/A-6 REDUCTION

Senator STEVENS. Well, it appears to us from what we are saying in terms of the 1984 budget that you could reduce your requirements by 24 F-14's and 6 A-6's and $188 million for advanced procurement if we read your program objective memorandum right. We would like to have you comment for the record on that, because it does seem to us that you are not saying the same thing, but you come to the same conclusion, that you can have a change in your procurement without a major adverse operational impact.

Admiral SCHOULTZ. Well, Mr. Chairman, I cannot really address our POM proposal. We have obviously made many changes in the original proposal, and in fact it is being discussed in the Defense Review Board this week. How that will come out I think will be dramatically different than the original proposal. So I cannot comment on that, even for the record, until it has been approved.

But we are building the 13th air wing this year and the 14th will stand up in 1987. So we have a force requirement to continue to buy the F-14, and we will upgrade it to meet the threat. That aircraft and the A-6 are the only two analog aircraft being built in the world today. All the rest are digital. We are that far behind the technology because in the 1970's, when we should have upgraded those airplanes, we did not because of the budget restraints.

Senator STEVENS. Well, we do read these reports. One of them said in the Washington Roundup, "The Navy will seek Defense Department approval of continued production of the Grumman F-14,

A-6E aircraft, reversing an earlier service decision that would have closed down the production lines in fiscal year 1986. The Navy planned to buy over a 5-year defense plan at the beginning of fiscal 1985 for a total of 199 Grumman aircraft for $7.3 billion. Grumman told the Navy it could deliver 210 aircraft, including F-14's and A-6E's, in the same period for the same cost if the lines were kept open."

Admiral SCHOULTZ. That is fairly accurate.

Senator STEVENS. That is a price cut, is it not?

Admiral SCHOULTZ. From Grumman?

Senator STEVENS. Yes.

Admiral SCHOULTZ. Yes, sir. I think you are going to see when the RFP comes over some of those initiatives that were taken earlier have been very fruitful for the taxpayer and certainly for the Navy.

Senator STEVENS. That is what I am saying. We do not see those. We do not see any reductions. We hear about all these savings, but when it comes time to take some of them out of the procurement account there is no change.

We will have to go on to some other things. I would like to have your comments. It is not sufficient for this subcommittee to say we cannot discuss it, because we have got about a one-vote margin on the floor on this vote this year. If I read the votes on the defense authorization bill, which was higher than the appropriations bill, we are going to be really scratching to hold on to every single item. And we cannot be your advocates and go on the floor and say, I am sorry, we cannot answer your question, Senator, because the Navy is not prepared to comment yet.

You really better listen to us this time. We have changed the procedures this year, submitted questions, analyzed the answers and now we are going specifically into areas where we know we are going to have problems on the floor.

If we are going to get the answers, we will be able to hold the line. If we do not get the answers, in the end you are the one who is going to lose.

Admiral SCHOULTZ. Yes, sir; the Secretary I believe, is going to the Defense Review Board today with the programs. It is still being worked at the OSD level. But I would think that by next week, or surely in the near term, we will have a better resolution of that and we can probably give you a better feel for that, and certainly some more ammunition.

F/A-18 PROGRAM

Senator STEVENS. Well, as Senator Rudman went into on the F/A-18 extensively, it just does not seem to us that the Navy has been completely consistent with the program it presented and justified to the Appropriations Committee on the F/A-18.

The program has significantly varied year by year from what has been justified here. And we think that cost increases have been downplayed, and we are now facing a real problem with the F/A-18 that would not have been there if the recommendations of those independent testers had been faced up to in a different manner. It

just seems the Department has said go ahead with production notwithstanding the comments of the independent testers.

That is something I voted against, but now you are going to have an independent testing agency. The reason I voted against it is the cost to the taxpayers is going to be staggering because of this new independent agency within the Department.

F/A-18 REDUCTION

It came about because the Congress does not believe you have been paying any attention to your own testers, and now the F/A-18 is a significant problem in that regard. And what Secretary Thayer has been quoted on now respecting the mix of tactical aircraft is that it could be changed after the F/A-18 is received. It has been implied by the Department that the production goal of 1,366 F/A-18's could be reduced.

Has that been thoroughly explored now as far as the services are concerned?

Admiral SCHOULTZ. Yes, sir. We have looked at it and we are continuing to look at it, but it is going to be a long time before we get the reduction. The reduction will come at the end of the buy. What it will be exactly, I do not know. But it will not be before 1992.

If you are going to build forces and increase and improve the units, you have to buy them for some period of time. The first three squadrons have been purchased in the Marine Corps' line. We have not stood up either one of the first two Navy squadrons.

So if we are going to replace our A-7's with F/A-18's, we will have to buy through 1992 to 1993.

F/A-18—A-6E TANKER REFUELING

Senator STEVENS. Do we have to now expand the A-6 tanker fleet in order to make up for the deficiency in the F/A-18?

Admiral SCHOULTZ. No, sir. As a matter of fact, we are going to cut down the A-6 tanker fleet. We have purchased a new and improved buddy store, which is a refueling store which goes on the A-6E. That store and that aircraft can refuel and transfer as much JP-5 as a tanker aircraft.

Back to my original statement, an aircraft that is on board a carrier that does only one mission is really not acceptable. An A-6E could be a refueler today, recover and drop his buddy store and load bombs and be a bomber this afternoon. This is a significant increase in capability.

We have 32 aircraft that we were planning to configure into tankers, now we are planning to stop that program and make only bombers.

Senator STEVENS. Does that not increase your launch time if you have to have your fighters remain in the area in order to refuel before they can take off on a mission?

Admiral SCHOULTZ. Well, no. The tanker goes along with the fighter when he is enroute. He refuels him enroute. What we do in normal operations is to give him a full takeoff fuel load. The tanker climbs with him, refuels him, gives him a 2,000-pound topoff at altitude, so he is fully loaded as he goes out at altitude, and the

tanker can come back and we cycle him through the deck. In fact, the first ones land at the end of the recovery and we launch them again.

F/A-18 DEPLOYMENT

Senator STEVENS. I think we better have a meeting one of these days over classified areas to discuss this one, because the F/A-18 is going to be under serious attack in the Senate in my opinion.

Admiral SCHOULTZ. Yes, sir. We have a long program. I think the Secretary testified on that. We have the first air wing, the Kennedy air wing, that is configured with F-14 and A-6's only. It will deploy this September to the Mediterranean and to the Indian Ocean.

Next spring when the *Constellation* comes out of overhaul, she will be configured to handle the F/A-18's. So we will replace the A-7 squadrons with the F/A-18's. When the *Coral Sea,* which is currently enroute to Central America, returns from this deployment, she will go into overhaul and she will be configured to handle four squadrons of the F/A-18's. Her fighter squadrons and her attack squadrons will be configured with F/A-18's.

Those three different configurations will be evaluated to find the best mix, to find out how we can best operate the aircraft in the battle group.

We also have ongoing, an air wing composition study, which we should see the results of next spring, that will try to find a better mix, an optimum mix, I guess is the better phrase. But you need to play that against every scenario in the world where we think we could use them, and what the optimum mix is we are still trying to determine.

We will be glad to give you some briefing——

Senator STEVENS. I wanted to go on to the Marines. Did you have any other comments about this?

HAWK TRAINERS

Senator RUDMAN. I had one brief question, if I might, on the trainers. There has been a lot of debate about the proper mix between carrier-qualified versus nonqualified Hawk trainers. We are planning to purchase 307 Hawk trainers, of which if my figures are correct, 54 will be noncarrier qualified.

According to the figures that I have, that have been provided, the Navy could save approximately $500 million if you purchased all carrier-qualified aircraft, because only 282 of the Hawks would be required. Is this a correct comparision? If it is, why have you not pursued that particular plan?

Admiral SCHOULTZ. I have never heard that number, Senator. We have looked at both programs, the all wet—we call the wet the one that goes aboard ship, that is carrier qualified; and the wet/dry, which is the carrier qualified plus the 54 that are noncarrier qualified.

The idea in buying those 54 was twofold: One, we get the aircraft 2 years earlier, because it is not a dramatic modification of the aircraft. The other one that really is significant, it gives us a handle on the contractor to get a basic configuration we can look at and

we can hold him to. Hopefully we can control the costs and keep them from growing if we have a basic aircraft to look at and say, we are not going to go any higher than that.

HAWK TRAINERS R&D COSTS

The R&D costs for the carrier capable aircraft are something that we have been scrubbing down. In fact, the British are in town now and we are working on that contract. It has been determined that to get the 54 aircraft 2 years early is an advantage to us in the training program.

We get it 2 years earlier. We start into the training program using the aircraft, and we can determine if we need to make any changes in the carrier qualification version.

But the cost difference between going all-wet and wet-dry are just about a wash as our costers look at it, although the Assistant Secretary says he does not understand how the cost can be the same when some aircraft are cheaper. If you have a cheaper aircraft in the program, it should be cheaper to buy some of the dry and less of the wet.

Senator RUDMAN. Well, GAO had suggested to the Secretary of Defense that what you do is extend the use of the TA-4J instead of procuring the 54 T-45B's. They said that would permit delaying acquisition until the others were available, and would eliminate the need to get a mixed fleet.

I am just looking at this $500 million figure, which you can check out, but I think you will find it is probably pretty close to being correct.

Admiral SCHOULTZ. Well, we have extended the service life from 9,000 to 12,000 hours. We believe that that is going to be right.

But really, our requirement for the TA-4 is attrition, basic attrition, which is about 4.2 percent. We just run out of those airplanes before 1991. It is not sufficient to continue the training at the 600 level, which is the number of tactical aviators that we train each year. It is an attrition problem.

Senator RUDMAN. Mr. Chairman, I may have some other questions on this, because obviously when we get to the final difficult task that we have to do what I think the majority of this committee would probably like to do, is not do anything that would affect readiness, if we can. And my questions have been directed really in that area this morning to a large extent, with the exception of the F/A-18.

Admiral SCHOULTZ. Thank you, Senator.

AV-8B

Senator STEVENS. General Fitch, the AV-8B program is reported to have problems. You indicated that that was going along very well, but our indications are that the Navy stopped the funding of the AV-8B because of the drag problem that had developed.

Now, are we to understand that that has been fixed now?

General FITCH. We still have a minor drag problem, Mr. Chairman. However, what we have done through changing the temperature limitations on the aircraft engine is to increase the perform-

ance of the full-scale development aircraft to where it meets operational requirements.

The deficiencies that have been identified in the operational tests and evaluations, of course, are all in the process of being corrected. One of the changes that will be incorporated is a minor change to the inlet for the engine, which we expect will provide about a 3- to 9- percent improvement in aircraft performance.

The Marine Corps has every confidence that when the production aircraft are delivered we will have an aircraft that exceeds our operational requirements.

AV-8B

Senator STEVENS. We are told that because of this drag it has cut the speed of the proposal by 20 knots. The drag apparently is caused by an 18-inch extension of the fuselage, and that really what has happened is that, in order to pick up the knots, just operating the engine so it is hotter all the time, is going to increase the maintenance problems in the engine.

General FITCH. No, sir. We have analyzed every problem associated with increasing the temperature, which happens to be a 25-degree temperature increase. We estimate that over the life of the program we will overhaul a total of about 11 engines earlier. The cost of doing this is extremely low for the performance gain that is provided.

AV-8B—CONTRACT HOLD

Now, the reason that the fiscal year 1983 contract has been held up has been to make the contractor perform and answer, or come up with the answers necessary to make this aircraft fully capable.

Senator STEVENS. Well, you have been fully capable with the AV-8B, but why should we put up the money, the $810 million for increasing—this is increasing production of this—when the Navy and the Marine Corps has restricted production?

General FITCH. This is an administrative action, Mr. Chairman; it is just a temporary hold on the contract. I would expect that that contract, those funds, would be released in the next few weeks. We just had a review by the Secretary of the Navy and we have every expectation that that contract will be going ahead in the very near term.

Senator STEVENS. Well, we want you to let us know by the markup on September 14. We will again be in real trouble. I hope that we can get a report as to what the timeframe is.

We face an increase in the AV-8B of that magnitude and a self-imposed delay by the Department. Those are inconsistent actions in our opinion.

TAV-8B

Where do you stand on the development of the TAV-8B trainer? Are you going to go into a two-seater version within the funds requested by the Department this year?

General FITCH. Yes, sir. We have requested $47 million in fiscal year 1984. We are also looking at an internal reprograming action

in fiscal year 1983 to get the program under way and save additional time.

We expect to have this aircraft flying in late 1986 and introduced in the fleet in 1987.

Senator STEVENS. Will you give us a justification of the TAV-8B production program and how it will develop?

General FITCH. Yes, sir.

[The information follows:]

TAV-8B TRAINER

The requirement for a two seat trainer for the AV-8B has been well documented by the Marine Corps and endorsed by both Houses of Congress. Support for the program with the Department of the Navy and Office of the Secretary of Defense has been expressed by inclusion of the project in budget submissions and the 1983 FYDP. Central to this support is the fact that as the Marine Corps transitions to an all V/STOL light attack force, the requirement for V/STOL pilots increases from a current strength of just over 130 to a total of 504 in 1989. In the first years of transition a pool of AV-8A/C aviators is available, but will be rapidly depleted. As the training requirement increases, a larger percentage of "conventional" aviators and first tour "nugget" aviators will be absorbed into the process and require the facility of a two-seat training aircraft for most efficient conversion to the unique world of V/STOL aviation.

The program will be structured within the limits of the AV-8B effort, two seaters exchanged on a one for one basis for single seaters and RDT&E costs offset by procurement reductions. Due to training efficiencies accruing to an equipment mix of single and two seaters in the training squadron, the reduction in the total number of aircraft in the AV-8B buy will not adversely impact operational or combat capability and will result in significantly lower operating costs as compared to an all single seat structure.

At the 1983 FYDP procurement rate the impact of the TAV-8B production has very little impact on the single seat production run. Sufficient aircraft are provided to permit exchange of single seat versions for both RDT&E costs and production of two seat models. One the production line the TAV-8B will be integrated into the single seat assembly line with little if any disruption. With a 90 percent parts commonality and 96 percent engineering drawing commonality, the TAV-8B's interference with AV-8B learning curve progression will be minimal, while the same commonality restrains the overall production costs of the two seater to a figure nearly as low as the single seat aircraft.

As a consequence, the training and operational economies of the two seat TAV-8B will be realized without prejudicing the production economies of the established AV-8B program.

AH-1T

Senator STEVENS. On the TAC helicopter, you are budgeting $17.8 million for advanced procurement on 22 more AH-1T, is that what it is?

General FITCH. Yes, sir, that is what it is.

Senator STEVENS. That was turned down by the Congress last year. Now, why do you want to buy more? These are the Sea Cobras?

General FITCH. Yes, sir, that is correct.

Senator STEVENS. Why do you want to buy more of those—that is the 1960's version—when you have got a more advanced and capable attack helicipter that has been developed, at considerable expense, by the Army?

General FITCH. Yes, sir. As I said in my verbal statement, Mr. Chairman, we have three active squadrons of AH-1J and AH-1T attack helicopters. We are currently short of AH-1T aircraft. The

Marine Corps, of course, was very disappointed that we did not have in fiscal year 1984 a buy of this aircraft.

What we are looking for is to flesh out those three active squadrons with the AH-1T, an aircraft which was first introduced in 1978, just 5 years ago.

But regarding the AH-64, Naval Air Systems Command estimates a 1- to 2-year research and development program, at a cost of $100 to $200 million, to make that aircraft shipboard compatible. In the Army configuration, the Marine Corps could not operate that aircraft aboard ship.

Senator STEVENS. But you are going to put a new engine in the Sea Cobra, as I understand it. It will be considerably more expensive than accelerating, making the Apache compatible with Marine activity.

General FITCH. What we have, Mr. Chairman, is an airplane that has grown in capability as regards the AH-1T. We did not have the anti-armored mission prior to 1978 for our attack helicopter. We were told by the Office of the Secretary of Defense and the Congress that we had to add an anti-armored capability, which at that time was the TOW missile. That added 500 pounds to the weight of the aircraft.

AH-1T (T-700 ENGINE)

There ahave been subsequent additions in capability which have increased the weight of the aircraft by about 1,000 pounds. The T-700 engine, which is currently in R&D and expected to fly in the November-December timeframe, will correct that weight disparity.

Admiral SCHOULTZ. The engine, by the way, Mr. Chairman, is a common engine we are using in the LAMPS. So it will be a great advantage to us logistically to support both the Marine Corps and the Navy with a single engine.

Senator STEVENS. The difficulty really is we really do not understand why the Marine Corps needs are not taken into account in the development of new systems by the Department. Here is a typical example, really. We are going to go back and retrofit the Sea Cobra, and we have got a new modern—a new version in terms of the Apache, A-64, and it is supposed to be a much more capable aircraft. We spent a lot of money on it.

But now we are told it cannot be used by the Marines without substantial expenditures for R&D. Now we are wondering why we should not put a requirement that the competitive procurement of the new aircraft include the need of the Marines for the helicopters. Why should we be going backward, General?

General FITCH. Mr. Chairman, we do not feel like we are going backwards. The AH-1T is a very capable aircraft that was first introduced in 1978. In fact, it will deliver a wider variety of weapons than will the AH-64.

AH-1T SHORTAGE

The problem we have is that we are short of aircraft right now and we do not have enough aircraft in the operating squadrons. If we go to the AH-64, we will have to expend R&D funds. In order to operate 72 AH-64 aircraft, we would have to expend $100 to $200

million in R&D funds over 1 to 2 years to make the AH-64 shipboard compatible, then we would have to get into the procurement cycle.

We estimate that we would introduce the marinized AH-64 about 1988 or 1989.

Senator STEVENS. Did you not participate in the Apache program?

General FITCH. We were deeply involved in 1981, and that involvement is the source of the changes to the AH-64 that the Naval Air Systems Command estimates are required.

Senator STEVENS. You do not have any competitive procurement for your attack helicopter requirements, do you?

General FITCH. No. sir, we do not, because what we are doing is buying the same AH-1T aircraft we bought in 1978 and 1979, except it has been updated by weapons capability and also engine capability.

JVX TILT ROTOR

Senator STEVENS. Now I happen to be personally very much enthused by the JVX tilt rotor, but under the circumstances of the budget, until we can get a uniform requirement from the Department for the Army, the Navy, and the Air Force, why should we proceed with the tilt rotor for the Marines alone?

General FITCH. At this point in time, Mr. Chairman, we are not proceeding alone. We still have a joint program.

Senator STEVENS. Well, the Army really is not too enthusiastic about it.

General FITCH. Yes, sir. It is funded in 1984 with the Army. What we have, if you add the requirement that the Navy has along with the Marine requirement, you are talking over 600 aircraft. It is the position of the Department of the Navy, as I understand it, that there is adequate justification to go it alone, if that is what it takes. We would prefer to see a joint program with the Army and the Air Force participating.

JVX VS. UH-60

Senator STEVENS. I think we could safely say the Army has made it clear to our staff here that the priority for the tilt rotor is not that high, and we reach the conclusion we do not know why the Marines cannot utilize the UH-60 Black Hawk, which already was modified by the Navy for Marine use. Did the Marines not agree with the UH-60 Black Hawk decision in the Navy?

General FITCH. That is for a different mission, sir. That is for the LAMPS III helicopter that the Navy is using, the Black Hawk for. There is absolutely no question that the Marine Corps could use the Black Hawk helicopter when marinized. However, in order to maintain a lift capability that is required by the Marine Corps and the Navy, you would have to buy about six additional ships to carry those Black Hawk helicopters if you were going to have an equivalent lift capability that the JVX provides.

Senator STEVENS. We have a staff memo of the Army saying this correspondence constitutes formal notification that the Army has

withdrawn from the program. The program is the JVX program. You were notified of that?

General FITCH. Yes, sir, I have seen that memo, but the decision is not final. The Secretary of Defense and Deputy Secretary of Defense are reviewing that program.

Senator STEVENS. I still do not understand why the UH-60 Black Hawk is not acceptable to you at this time as an interim measure in view of the high development cost of the JVX tilt rotor at this time.

General FITCH. Well, our requirement, Mr. Chairman, is for an aircraft that is capable of carrying 24 troops and carrying them at much, much higher speeds than what the CH-60 or UH-60 would be capable of doing. If we were to go to the lesser capable aircraft, it would magnify the problems of the Marine Corps greatly, resulting in degraded helicopter lift capability and as I said, we would have to procure six additional LHD ships in the Navy to provide the necessary helicopter deck spots.

Senator STEVENS. But, General, you should hear it from up here. On the one hand, you say you cannot wait for the Apache. On the other hand, you say you are going to wait for the JVX.

JVX DEVELOPMENT TIME

General FITCH. Yes, sir.

Senator STEVENS. The development time of the JVX is much longer than the Apache R&D you just spoke of.

General FITCH. It is a different situation, Mr. Chairman. The CH-46E, our medium assault helicopter, goes below our minimum lift requirement in 1991. That is why it is very important for the Marine Corps to introduce JVX in 1991. So we have a different situation. We are not short CH-46 helicopters right now. We are short AH-1 helicopters.

Senator STEVENS. So we are going to have the situation where the Navy is going to have the UH-60, but the Marines are not going to use it. The Marines are going to have the tilt rotor, but the Army is not going to use it. And the Marines are going to keep the AH-1T with a newer T-700 engine which no one else is going to be using. It does seem that you all are in the same department, and the costs of these separate programs are getting excessive.

As I say, coming from where I come from, I would love to see the tilt rotor become an operational commercial civilian aircraft, not only military, but civilian. It would mean a great deal to people who live in countries like I do. I speak of it as a separate country from the standpoint of aviation demands it is a separate country compared to the South 48. But from the point of view of the priority the Marines have given the JVX with regard to the high development costs, which is what took the Army out of it, if it is too high a development cost item for the Army, why is it not too high for you?

General FITCH. We are talking a matter of priorities, Mr. Chairman. JVX is probably the highest aviation priority that we have in research and development. I might also add, sir, that as regards the Army on AH-1's, I think the Army has somewhere between

1,000 and 2,000 AH-1S's that they will operate for a considerable period of time.

Senator STEVENS. As Mr. Dahr points out, though, they are not requesting any money to buy any new ones.

Gentlemen, do you have any questions? Senator Weicker, do you have any questions?

Senator WEICKER. [Nods in the negative.]

JVX TILT ROTOR USAGE

Senator STEVENS. We appreciate your responses, General Fitch. If you want it that bad, we will do our best to get it for you, but you will have to hold onto your hat on that one, I think. To what extent have you used this tilt rotor in any way at all? Can you give us any further justification for it?

General FITCH. Yes, sir. First, we feel that the technology, the capability to develop JVX is there. The XV-15 technology demonstrator aircraft has been flying for some time. It also happens to be an Army/NASA joint program. I have personally flown the XV-15. We have a NASA evaluation of the risk factor associated with scaling up the XV-15 to a JVX aircraft. NASA says the risk is low. So, we feel that as long as the proper level of funding is provided, this JVX aircraft can very easily be introduced by 1991.

Senator STEVENS. On a carrier capability basis?

General FITCH. It is carrier capable, yes. It is designed to operate shipboard, ashore, or in any manner in which both the Navy and the Marine Corps would expect to operate.

JVX COSTS

Senator STEVENS. You realize it is a $41 billion total program that you are embarking on?

General FITCH. Yes, sir, I fully understand that.

Senator STEVENS. All alone. And if the Congress does not give you the money, you will be without helicopters.

General FITCH. We are not alone but with the Department of the Navy, sir. The program cost would be substantially less if the Air Force and the Army were not participating. It would not be a $41 billion program under that criteria.

Admiral SCHOULTZ. Mr. Chairman, I would like to point out that the Navy is supporting strongly the Marine Corps requirement, plus the fact we have a requirement for search and rescue aircraft, but we can see that technology spreading over into many other areas such as logistics' helicopter requirements, an ASW role, and an over-the-horizon targeting role. I, like General Fitch, have flown the airplane. It is an unusually capable aircraft. To take it from a hover you just run the engines down and it transitions to horizontal flight at 250 knots and then flies like an airplane.

Senator STEVENS. I would like to fly it myself. I would like to get it for the Coast Guard. But it is just too expensive.

Admiral SCHOULTZ. We have a good program, I think. We have a 23-month program where we are expanding the technology. When the develoment program is really started in 1985, we will know what we have got.

Senator STEVENS. See what you can do about bringing down unit costs, and we might be able to get some of the civilian part of the government involved, like the Coast Guard. I just have to tell you that it is too expensive.

General FITCH. Mr. Chairman, if I could just make one point, I just had it brought to my attention that if we could deal in constant fiscal year 1983 dollars for the Navy and the Marine Corps, the total buy could be accomplished, including the R&D, for just over $14 billion in fiscal year 1983 dollars.

Senator STEVENS. Well, if we could build the Alaska gas pipeline in terms of 1982 dollars, it would cost $4.7 billion. If we put it into inflated spirals, it is $24 billion, General. So it would be nice to live in the never-never world of constant dollars, but we face the increases every year. That budget we have got today out there, the limitation is in 1984 dollars.

I do thank you gentlemen for your help.

SUBMITTED QUESTIONS

We have additional questions which will be submitted to you for your response.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

ALLEGED AIRCRAFT OVERBUY

QUESTION: Provide for the record a comparison of the projected and actual aircraft losses by type of aircraft for each year beginning in 1978 through 1982 for both the Air Force and the Navy?

ANSWER: The actual Navy aircraft losses by type of aircraft for 1978 through 1982 compared with the losses that were projected are as follows. The difference over this period was less than 3 percent.

PROJECTED/ACTUAL

	FY-78	FY-79	FY-80	FY-81	FY-82	TOTAL
VF	33/28	31/26	31/28	24/19	25/18	144/119
VA	46/41	39/33	37/36	32/38	29/33	183/181
VS	3/1	3/3	2/2	2/0	2/1	12/7
VP	1/4	2/2	2/1	3/2	2/0	10/9
VW	1/1	0/0	1/2	1/0	0/0	3/3
VR	0/1	1/1	0/2	0/1	0/2	1/7
VU	0/0	1/1	0/0	0/0	1/1	2/2
VT	17/16	18/18	23/24	29/11	20/19	107/88
H	24/27	18/28	23/25	19/32	18/21	102/133
VO	1/1	0/0	1/0	0/2	1/1	3/4
TOTAL	126/120	113/112	120/120	110/104	98/96	567/552

LONG RANGE FIGHTER PROCUREMENT PLAN

QUESTION: This year's five year procurement plan indicates that the F-18 program with its 1980 technology will be bought out two years sooner than the F-14 program with its 1970 technology. Many of these F-14s were introduced more than 10 years ago and, according to your budget documents, their potential has been exhausted or is limited. Why then hasn't the Navy requested an R&D program to develop a replacement fighter?

ANSWER: The Navy has developed an advanced technology upgrade program for the F-14 weapon system platform. Improvements under this program are in two major areas (PE 25667N/W0846, Alternate Fighter Engine, and W1408, F-14 Radar Improvement/Avionics) which will significantly increase the effectiveness and operational readiness of the F-14 in countering the threat until the follow-on fighter aircraft (VFMX, PE63251N/W0585) becomes operational. The latest F-14 Selected Acquisition Report (SAR) reflects the updated technology version of this aircraft. Procurement, starting in the late 1980's will continue to meet the threat until VFMX introduction in the early 2000's.

The 1984 new start VFMX program provides for system concept formulation, requisite advanced development and transition to full scale engineering developement of the F-14/A-6 Follow-on Multi-Mission Fighter/Attack Aircraft Total System.

Navy planning guidance is consistent with the Office of the Secretary of Defense report "Tactical Air Power Requirements"

submitted to Congress in March 1983. In the long term, the Navy intends to reduce the number of types of its aircraft and effectively introduce new model aircraft in a cost-effective manner. Additionally, the Navy will continue integrating technological improvements into existing aircraft (P^3I programs) to meet the changing threat while developing future systems in a timely fashion.

QUESTION: Which of these fighters does the Navy intend to replace first, the F-14 or the F-18?

ANSWER: The aircraft procurement strategy of the Navy strives for commonality in aircraft types, economical procurement rates, a minimum number of new starts, and the maximum feasible use of Conversion in Lieu of Procurement (CILOP) and Service Life Extension Programs (SLEP). The F-14A aircraft will be undergoing a platform upgrade in the late 1980's to continue to meet the near-term threat. Replacement of this weapon system based on proposed future threats is planned for the early 2000's. When the F/A-18 aircraft can no longer counter the growing threat, the Navy, based on the optimum/cost effective use of its resources, will either initiate a replacement program to be defined in ongoing Naval long range planning documents or will proceed with a product improvement program to extend the fleet use of this aircraft.

QUESTION: In DOD's recent secret "Tactical Air Power Requirements" report, an F-14 follow-on is briefly mentioned. Provide for the record, a timetable with development and procurement funding profile of the phase-out and phase-in of the F-14 follow-on program.

ANSWER: The F-14 () program referred to briefly in the "Tactical Air Power Requirements" report submitted to Congress in March 1983, supports the aircraft force modernization strategy of the Navy. This aircraft program is two-fold. First, it will continue to ensure that the Navy can meet the Soviet threat by updating aging technology in a cost effective manner through the introduction of the F-14 () in the late 1980's and secondly, will ease the Navy's procurement requirements by sequencing major aircraft replacements allowing for an orderly Naval force renewal as described in the aforementioned report.

Recent restructuring in the F-14 () program will extend the use of this fleet asset beyond original predictions, requiring reevaluation of the VFMX replacement system. System trade-offs are currently being performed in cost analysis, performance, threat environment and scheduling. Program definition, including platform identification, required R&D technology, replacement ratios, economic buy rates and procurement/funding profiles are currently under investigation.

A-6 AND F-14 PROCUREMENT PROGRAMS

QUESTION: Are you now trying to change that position to continue production of the F-14 and A-6? If so, is this because the prime contractor has offered the Navy a better deal?

ANSWER: There is currently under consideration with the prime contractor an approach which would not require complete

shut-down of the A-6 and F-14 production lines. The main advantage to the new approach is the avoidance of costs associated with the shut-down and re-opening of the existing production line, both at the prime and sub-contractor levels.

QUESTION: How much will this reduce the costs of both of these aircraft through 1989?

ANSWER: As several alternative strategies are now under consideration, specific cost reduction estimates are not yet available. The intention is to structure a balanced program which would avoid the high cost of a complete shut-down while recognizing the impact on recurring unit costs as the annual quantities are reduced. A definitive acquisition strategy should be completed during the next few months in time for the funding requirements to be identified in the FY-85 congressional budget submission.

QUESTION: How does this affect your 1984 budget? Can we reduce your 1984 request for 24 F-14s ($886.8M); and 6 A-6 aircraft ($205.4M) and $188 million for advance procurement?

ANSWER: The funding level recommended by the Senate Armed Services Committee reduces the $886.5 million to $792.4 million for the F-14. In view of the savings achieved in negotiations for the FY 1984 airframe, the revised estimated cost of the engine, and the deferral of the programmable signal processor (PSP), the funding level recommended by the Senate Armed Services Committee is now considered sufficient for the procurement of 24 F-14 aircraft in FY 1984. The $205.4 million for 6 A-6Es is still required. The amount required for advanced procurement of FY 1985 aircraft is still $178.8 million for the F-14s and $11 million for the A-6Es.

A-6F

QUESTION: The justification provided for this R&D program states that ". . . the A-6 can be given improved short take-off and landing characteristics at reasonable gross take-off weights in this configuration, permit landings with increased weight of unexpended fuel and high valve weapons . . . . and take off from runways of reduced length for the United States Marine Corps close air support role." Does this indicate that the Marine Corps is backing off of the AV-8B?

ANSWER: The A-6 aircraft is the only aircraft capable of providing all weather Close Air Support (CAS), Deep Air Support (DAS) and Interdiction, while the AV-8B is a rapid response aircraft which will provide CAS, DAS and Interdiction missions during periods of visual meterological conditions. The A-6, by virtue of its missions, does not reduce the requirement of the AV-8B light attack aircraft and its mission. Even if a STOL version of the A-6 is developed, the requirement for the AV-8B would remain in the same.

QUESTION: The Navy is requesting $31 million in R&D for the A-6 STOL (short take-off-and landing) demonstrator program. This program configures an A-6 testbed aircraft with 2-dimensional exhaust nozzles and full blown flaps to give the A-6 a STOL capability.

Does the Navy have a documented requirement for such an aircraft?

ANSWER: The Navy does not have a requirement for STOL in the A-6 all-weather medium attack aircraft. The STOL demonstrator is a technology demonstration to develop a generic capability for application to any future aircraft mission requirements. The A-6 was chosen as the host vehicle for this demonstration because the engine nozzles are near the center of the fuselage, close to the center of gravity of the aircraft. This configuration is complementary to the U.S. Air Force technology requirement to develop a STOL capability in aircraft where the tailpipe is in the extreme aft end of the fuselage.

QUESTION: Last year this Committee zeroed the A-6 STOL program, but receded in conference based on the assumption that it would continue to be only a technology demonstration.

Now the Navy wants to start up an A-6F procurement program based on this technology. What has changed in the past six months that would justify changing this from a technology demonstration to a procurement program?

ANSWER: Although both the A6F and the A6E STOL are funded under the same program element number (PE6325N) for FY-84, they are two different programs. The A6E STOL is the technology demonstration. The A6F development (previously known as the A-6 Upgrade) is not related to the technology demonstration program. It is an upgraded version of the A6E, incorporating major radar, avionics and engine improvements.

QUESTION: Has a mission element needs statement been submitted for this program?

ANSWER: A joint mission element needs statement has been submitted for the A6F; a mission element needs statement is not required for the STOL technology demonstration and, therefore, none has been submitted for it.

QUESTION: When does full scale development start on this program?

ANSWER: Full scale development for the A6F is scheduled to commence in FY-84 after preliminary design and cost effectiveness trade off analyses have been conducted.

QUESTION: How can you justify entering into a procurement program for the A-6F when all the R&D that has been conducted to date is essentially design, analysis and simulation?

ANSWER: Procurement of the A6F is not scheduled until FY-88 after adequate testing has been completed.

QUESTION: When will you flight-test this aircraft?

ANSWER: The first flight for the A-6F is scheduled for FY-87.

HAWK TRAINER

QUESTION: The Navy is seeking $4.9 million in advance procurement to start a $5.2 billion undergraduate jet training aircraft replacement program. Your budget estimate claims you want 251 T-45A carrier qualified trainers and 54 T-45B field carrier landing qualified aircraft. As recently as May the Navy was reviewing and revising its requirements for the T-45B. What is the current program requirement?

ANSWER: The requirement remains for 251 T-45A carrier qualified aircraft, 54 T-45B field carrier landing qualified aircraft, and the remainder of the training system, including simulators, courseware, and training management system.

QUESTION: Given the uncertainty of the program requirement and large R&D funding commitment remaining, why should the Committee agree to approve advance procurement in FY 1984?

ANSWER: The program requirement is firm. The requirement is for 54 T-45B aircraft, 251 T-45A aircraft, and the remainder of the training system, including simulators, courseware, and training management system. The large R&D funding commitment remaining is for development of the T-45A and the remainder of the system. The advance procurement is for long lead ordering for the FY-85 procurement of the first two T-45B aircraft, which require no R&D.

QUESTION: Is it true that you do not need the carrier qualified T-45A's until 1989?

ANSWER: The current program meets the Navy's training aircraft requirement in two phases. The first phase provides 54 T-45B (dry) aircraft to meet near term T-2 and TA-4 shortfalls beginning in FY-88. This allows a delay in implementation of the second phase, the T-45A and the remainder of the system, until FY-91. A single phase acquisition strategy would have provided T-45A's in 1989.

QUESTION: What assurances can you give that the Navy will not reverse itself again?

ANSWER: The Navy has changed direction only once. Immediately after source selection (November 1981), we settled on the two-phase acquisition strategy as the most affordable program that would meet our needs.

QUESTION: I understand that the average recurring unit flyaway cost of the T-45A carrier qualified aircraft is $11.4 million compared to $8.8 million for the land trainer. Why are the costs so different?

ANSWER: The difference in cost is due to inflationary factors. The T-45B's are paid for by FY-88. The last T-45A isn't procured until 1993. In constant FY-83 dollars, both aircraft cost approximately $6.3 million.

QUESTION: At $2.6 million difference per aircraft, why aren't you buying more of the land trainers and fewer of the carrier qualified version?

ANSWER: There really isn't a difference in cost between the two versions, in real terms. In constant FY-83 dollars, both cost approximately $6.3 million. The apparent difference is caused by the timing of the buys. The T-45B's are paid for by FY-88. The last T-45A isn't procured until 1993. The carrier qualified version is the preferred version because of operational flexibility and fatigue life consideration.

QUESTION: For the T-45B version, what is the cost to strengthen the landing gear support structure and install side mounted speed brakes on the existing Hawk aircraft and where will the R&D dollars be in your budget for this?

ANSWER: The cost estimate for the T-45B is an estimate for the whole aircraft, developed by employing standard estimating methods and procedures, not by adding a delta to the existing version of the British Aerospace Hawk aircraft. Therefore, it is not possible to derive meaningful estimates for individual airframe components for use in a direct comparison with the parent version. Strengthening of the landing gear and addition of side mounted speed brakes are both considered low risk engineering changes to a proven airframe. As with other similar engineering changes, they will be done with APN, not R&D dollars.

QUESTION: We have reports that the Navy was considering leasing Royal Air Force Hawk aircraft. Do you plan to lease any Hawk aircraft this year or next? If so, describe your program and its justification.

ANSWER: The United Kingdom Ministry of Defense has offered the free loan of 12 RAF TMK1 Hawk aircraft. If we enter into this agreement, the RAF Hawks would be used in undergraduate naval flight officer (not pilot) training. This would allow approximately nine TA-4 and three T-2 aircraft, both of which are in short supply, to be transferred into pilot training.

F/A-18

QUESTION: Let's turn now to the F/A-18 strike fighter, which seems to be having continued problems. First on the fiscal management end, what is the Navy's position on allegations that cost increases in this program were covered up and that funds have been spent contrary to Congressional intent?

ANSWER: With one possible exception still under legal review involving $15.7 million, the F/A-18 business and financial transactions have been in complete compliance with DOD and Navy policy, procedures and regulations, and the intent of Congress as delineated in the Congressional Record and Public Law. Furthermore, the F/A-18 financial situation has been clearly explained to the Congress and its staff in presentations, discussions, hearings, responses to questions for the record, and official documents submitted to Congress.

QUESTION: Can you say the Navy has been straightforward and completely above board on the management of F/A-18 appropriations? Hasn't the Navy's program over the past four years been significantly different from the program that was presented and justified to the Appropriations Committees?

ANSWER: Yes, the Navy has been straightforward and completely above board on the management of F/A-18 appropriations. This is supported by the level of detail contained in the audit reports which were based upon the data and cooperation provided to the auditors. As noted by the auditors, the Navy's program has been significantly different from the program that was presented and justified to the appropriations committees. However, the appropriated funding, authorized aircraft quantities, and rate of inflation were also significantly different from those presented and justified to the appropriations committees. The audits merely

documented the history of how the impact of these significant changes was managed over time. The management actions taken were fully explained to the Congress and its staff in presentations, discussions, hearings, responses to questions for the record, and official documents submitted to the Congress.

QUESTION: Is the Navy confident that this dual mission aircraft will turn out to be a fully capable and effective tactical weapon? Do you have any reservations at all?

ANSWER: The flexibility and capabilities gained in the F/A-18 far exceed expectations and, in fact, accomplish the strike-fighter mission extremely well. With its multimission capability, its outstanding performance, superior maneuverability, reliability and maintainability, and survivability, the F/A-18 will enhance the Navy's overall fleet defense capability.

Fleet pilots are flying unrefueled strike missions in excess of a 500 nautical mile radius carrying a four-thousand pound bomb load. Fleet pilots continue to enthusiastically praise the F/A-18 for its performance capabilities.

QUESTION: What is the unit cost impact of the decision by Spain to buy less F/A-18's than it had planned on?

ANSWER: There is no unit cost impact at this time. Spain did not decide to buy fewer aircraft, but decided to restructure the procurement from a firm quantity of 84 to a firm quantity of 72 with an option for 12 additional aircraft in fiscal year 1987.

AV-8B

QUESTION: What would be the impact on your costs and your testing program if we suspended production of this aircraft for a year?

ANSWER: If the FY 1984 production of the AV-8B is suspended for one year, the near-term costs are estimated at $333.7 million and the long-term costs are estimated at $803.4 million additional throughout the life of the program.

The estimated $333.7 million for the near-term effects can be attributed to such items as: cost involved in the termination of employee employment, material termination and preservation costs, tooling preservation costs, sustaining costs for peculiar contractor-furnished equipment/government-furnished equipment vendor items, the redistribution of overhead costs to other on-going military programs and the continuation of support costs to maintain aircraft previously delivered and now operating in the inventory. The long-term effects include such items as: start-up costs, requalification of vendor costs and loss of manufacturing learning costs.

In addition, the suspended production could cause certain ramifications to the Spanish Navy FMS programs and the United Kingdom collaboration effort on the GR5 aircraft.

There would be no impact on the testing program for the AV-8B if the production was suspended for a year.

AV-8 SAFETY AND RANGE PROBLEMS

QUESTION: Has the Marine Corps enough operating experience with the AV-8B to determine whether there are any safety problems similar to those experienced with the AV-8A?

ANSWER: The Marine Corps is confident that the AV-8B is a much safer aircraft than the AV-8A. Marine pilots who have flown a portion of the 1000 hours flight time accumulated during 18 months of Full Scale Development invariably comment on the vast improvements in handling qualities and stability achieved in the AV-8B. In the V/STOL flight regime the aircraft benefits from increased roll power, improved lift devices and aerodynamic surfaces as well as a sophisticated auto stabilization system that reduces pilot workload dramatically. The technical innovations developed for and installed in the AV-8B have met expectations and V/STOL has been reduced to a "routine" flight evolution requiring no more skill or concentration than the landing evolution required in familiar CTOL or rotor wing aircraft.

Engine improvements developed over several years in answer to all known "Pegasus" deficiencies are being phased into the AV-8B powerplants and have already demonstrated improved reliability in ground test, ground qualification and flight test. With the introduction of the F402-RR406 powerplant early in 1985, Marine AV-8B's will benefit from an intense technical effort to improve the Pegasus reliability to a standard comparable with contemporary tactical jet powerplants.

Two thirds of the accidents experienced by the AV-8A fleet were directly related to two factors, handling qualities and engine reliability. Experience with the Full Scale Development articles indicates that the specified improvements have been achieved and that the accident rate of this exceptional aircraft will be reduced to the level of ordinary CTOL light attack aircraft.

QUESTION: Do the Marines have any concerns about the range and performance limitations of the Harrier as a light attack aircraft?

ANSWER: The Marine Corps has followed the AV-8B through a rigorous series of range and performance trials conducted by COMOPTEVFOR and has been satisfied that the aircraft meets its light attack mission requirements. Flown at medium to high altitude the AV-8B has exceptional range, and configured for its primary mission in a high threat environment it consistently demonstrates a radius of action well in excess of the minimum required of a forward based, quick reaction close air support vehicle. In the same series of trials the aircraft demonstrated its ability to carry a full warload at speeds sufficient to penetrate a high threat array and successfully complete its mission. Coincident with the successful evaluation of the basic FSD design, a refined inlet contour has been developed which may further enhance performance. Scheduled for demonstration in September, the improvement has the potential to increase both range and speed. If verified, the minor design change will be incorporated as a "bonus" benefit into the production line without disruption or cost penalty.

In production the AV-8B will bring V/STOL to maturity, combining unparalleled flexibility with high aircraft peformance and modern weapons system accuracy. The Marine Corps is confident that the product about to enter service will fulfill its potential and establish its reputation as the world's finest close air support aircraft.

TAV-8B Trainer

QUESTION: What is the estimated development cost of the trainer version?

ANSWER: The original development costs of the two seat trainer were estimated at $164M with a start in FY-83. The estimate remains valid, dependent on the funding profile and schedule constraints imposed upon the effort. As directed by Congressional language the program will be managed, funded and limited within the context of the AV-8B project.

QUESTION: How will you be able to develop and produce this trainer aircraft in time to meet peak training demands in 1986, as mentioned in your statement?

ANSWER: The TAV-8B development is a vital component of the transition to an all V/STOL light attack force. The requirement to train and transition large numbers of aviators to the AV-8B increases dramatically during the 86-89 timeframe, but the peak demand for the two seat trainer lags slightly behind the transition rate of the AV-8B. The supply of qualified AV-8A/C aviators with V/STOL experience will permit rapid transition directly to the AV-8B and cushion the impact of the introduction of the new aircraft. However, as the trained V/STOL resources are depleted, the requirement to employ an appropriate two seat training vehicle is obvious. The current fiscally constrained development plan will provide a TAV-8B prototype first flight in 1986 and deliver the first two production trainers a year later.

As a consequence of the non-availability of the TAV-8B until 1987, the Marine Corps must transition the first two squadrons, VMA 331 and VMA 231 from its existing cadre of AV-8A/C pilots. Those qualified V/STOL aviators will complete an abridged syllabus leading to qualification in the AV-8B, but implementation of the standard conversion syllabus permitting the infusion of large numbers of conventional aviators remains dependent upon delivery of sufficient two seat aircraft to support the full syllabus.

The Marine Corps is sensitive to the critical role of the TAV-8B in the conversion of the light attack force to V/STOL and solicits continued support for trainer development to preclude slippage into less effective and more costly options.

ATTACK HELICOPTERS

QUESTION: General Fitch, your statement indicates that, in addition to many costly improvements, the Marines now want to put a T-700 engine package in the AH-1T. What is the flyaway cost of this vastly improved AH-1T as compared to a marinized version of the AH-64 Apache?

ANSWER: Your comment, Sir, regarding the desire of the Marine Corps to put a T-700 engine package in the AH-1T is correct. For the past three years we have been engaged in an engine enhancement program for the forty-seven AH-1T aircraft in our current inventory. In 1980, Bell Helicopter conducted an independent research and development program in which a T-700 engine was installed in one of our AH-1T aircraft and successfully flown. The result of this preliminary test program was based upon 53 operating test hours and concluded with the finding that the new engine would greatly enhance

AH-1T range and payload capability, particularly at high density altitude. The first flight under the purview of the Department of the Navy of an AH-1T+ aircraft with a T-700-401 engine installed is scheduled for December 1983. With the T-700 engine, the average unit flyaway cost of the AH-1T+ in FY-85/86 is $7.6 million. The Naval Air Systems Command estimates that because of the number and magnitude of modifications, a marinized version of the AH-64 will have a unit flyaway cost between $10 and $13 million. Marinization of the AH-64 requires:

- Incorporation of a blade fold system for shipboard parking/transport.
- Improving the rotor brake to withstand sea going high wind engagements/shutdowns.
- Integration of Naval Avionics.
- Modifications for Naval software compatibility.
- Incorporation of Radiation Hazard Protection System for aircraft armament systems.
- Modification of wheel base to meet shipboard dynamic rollover requirements. Current AH-64 rollover characteristics are unsatisfactory for shipboard use.
- Improving wheel brakes for pitching deck operation at sea.

Additional modifications desired which would make the AH-64 weapons capability comparable to the AH-1T+ are:

- Addition of the AIM-9 Missile System for anti-air defense against the HIND.
- Incorporation of the TOW missile system. TOW/Hellfire are viewed by the Marines as complementary weapons which fill each other's shortfalls.
- Changing the turret to a 20 or 25mm gun. The 30mm gun on the AH-64 is unacceptable for shipboard operations due to radiation hazard characteristics.

QUESTION: To what extent have the Marines evaluated the costs of these two systems, including the cost of adapting the Apache's Hellfire missile to the AH-1T?

ANSWER: Since the requested funds are for a force level maintenance/attrition procurement of an AH-1T aircraft which is already in our inventory (with incorporated modifications/improvements since last purchase), the cost figures of the AH-1T are considered well developed and refined. The integration cost for the Hellfire Missile System is $200,000. The prime contractor has indicated a willingness to sign a firm fixed price contract for the 44 aircraft being requested.

The AH-64 costs are not as well defined. Extensive efforts, however, have been expended to evaluate and cost out an Apache alternative. Our AH-64 assessment has included sending three pilots through AH-64 ground school, flying two pilots in 20+ hour AH-64 flight syllabus, flying numerous other Marine pilots including several general officers on AH-64 familiarization flights, conducting a technical assessment by a fifty man Naval Air Systems Command team, evaluation of a Hughes Helicopter budgetary proposal for a marinized AH-64, and several follow-on meetings/discussions with Hughes personnel.

QUESTION: Why shouldn't the Committee require competitive procurement for the Marine's attack helicopter requirements?

ANSWER: This initiative is requested as a force level maintenance/attrition procurement to fill a current critical inventory shortfall. It will result in an all AH-1T active force of three 24

plane squadrons and a reserve AH-1J force with 24 aircraft plus an AH-1J training element. A competitive procurement among various types of attack helicopters is not considered feasible due to the added delay and the high cost of introducing a new aircraft support system into the fleet for a small number of aircraft (44).

QUESTION: Previous testimony to the Congress by senior Marine Corps witnesses recognized the clear superiority of the AH-64 Apache over the AH-1T+ Sea Cobra but expressed the view that the AH-64 is too costly and could not be produced in the same general timeframe as the AH-1T+. Recent information available to the Committee shows the Army's estimated flyaway cost of the in-production AH-64 is $7.8 million in FY 1984 dollars. We are told the Marine Corps estimated flyaway cost of the planned AH-1T+ is $7.8 million. With an added amount for marinization and other shipboard compatibility features for the AH-64, what is the final estimated difference in cost?

ANSWER: In previous testimony we have stated that the primary advantage of the AH-64 is its significant night capability. The AH-1T+ aircraft will provide a comparable capability in most mission areas. Additionally, the AH-1T+ will have a dual anti-tank capability with both the TOW and Hellfire missiles as well as a number of other weapon options such as the Zuni, CBU-55, and AIM-9 that are not currently available with the AH-64.

The average unit flyaway costs for the AH-1T+ is $7.6 million in then year dollars. The Army has provided cost information indicating the average unit flyaway cost for 515 AH-64 aircraft in FY82 through FY87 is $8.9 million in then year dollars. A marinized AH-64 is estimated by the Naval Air Systems Command to cost between $10 and $13 million in then year dollars. The difference of $2.4 to $5.4 million in average unit flyaway costs between the AH-1T+ and the AH-64 is only a part of the total cost difference.

The AH-64 currently has no logistic support base in the Navy and would require the added cost of initial support estimated at a minimum of $5 million per aircraft. The logistic support system for the AH-1T+ is essentially in place. And, as previously mentioned, the AH-64 marinization development costs will be approximately $200 million while the T-700 engine for the AH-1T+ will cost only $16.8 million to develop.

QUESTION: Wouldn't an aggressive qualification and procurement program field either the AH-1T+ or the AH-64 in meaningful quantities by FY 1987?

ANSWER: No. The AH-1T+ can be fielded in FY-86. Fielding a marinized AH-64 would require a minimum of three years to design, fabricate and test a prototype aircraft. Based on a Hughes Helicopter budgetary proposal dated April 1982, the cost of development is estimated at $200 million. The funds for this major development program are not currently available, budgeted or requested. The earliest a marinized AH-64 could be fielded if funds were provided would be FY-89.

QUESTIONS: What is the status of the AH-1 production?

ANSWER: The AH-1S line is currently in production for the National Guard and foreign military sales. The last deliveries are expected in April 1986 just as AH-1T deliveries begin, thus affording the benefit of having a skilled labor force in place. The transition to the AH-1T+ can be effected with no production line break, if the 84 advance procurement funding is approved.

QUESTION: Will it have to be reactivated for the AH-1T buy? If so, at what cost?

ANSWER: The AH-1 production line will not have to be reactivated if the FY-85/86 procurement proceeds as planned. Minor retooling would have to be accomplished to accommodate the T-700 engine, and some older tooling would have to be refurbished. The total non-recurring cost of switching the production line from the AH-1S to AH-1T ($6.8 million) is included in the $17.8 million long lead funding requested in FY 1984.

QUESTION: So the Committee may review Marine Corps attack helicopter requirements and options, please provide to the Committee all pertinent facts for potential AH-1T+ and AH-64 alternative attack helicopter procurement programs to satisfy Marine Corps requirements. Include (a) comparative information on configurations, mission performance capabilities, night and adverse weather capabilities, modifications and/or qualification requirements (explain and justify differences in the planned configuration between the AH-1T+, a Marine AH-64, and the Army AH-64), (b) logistical support based on the same number of support locations, (c) estimated R&D and any other qualification costs, (d) estimated procurement costs, (e) estimated AH-1T retrofit costs (include number of aircraft by year), funding profiles by fiscal year, qualification and procurement/production delivery schedules, and any other information that will assist the Committee in making an informed judgment. For the purposes of this alternatives comparison, cite cost estimates in the same year dollars for both AH-1T+ and the AH-64.

ANSWER: We will answer the question in the format posed by the Committee.

(a) It is important to remember that the procurement of 44 new AH-1T+ aircraft is a Force level maintenance/attrition buy to alleviate a critical shortfall in the Marine Corps attack helicopter community. The AH-1T was first procured in 1978.

Configuration differences between the AH-1T+ and the Army's AH-64 fall primarily into the area of weaponry and are as outlined below:

AH-1T+	Army AH-64
Hellfire (non-autonomous)	Hellfire (autonomous)
20 mm cannon	30 mm cannon
5.0" rockets	TADS/PNVS FLIR
Sidewinder/Sidearm	Doppler NAV
Night Vision Goggle Cockpit	
TOW	
Droppable stores (CBU's, FLARES, etc.)	

The only significant mission capability difference between the two aircraft is in night/adverse weather capabilities where the AH-64 with its TADS/PNVS FLIR is clearly a more capable weapons delivery platform.

The Army AH-64 would require major modifications as well as Navy qualifications to meet shipboard capability and safety requirements. The major changes required include:

- Incorporation of a blade fold system for shipboard parking/transport.
- Improving the rotor brake to withstand high wind during engagements/shutdowns, in the more demanding shipboard environment.
- Integration of naval avionics, for interoperability.
- Modifications for naval software compatilibity.

- Incorporation of a safer Radiation Hazard Protection System for naval aircraft armament systems.
- Modification of wheel base to meet shipboard dynamic rollover requirements. Current AH-64 rollover characteristics are considered unsafe and not satisfactory for shipboard operations.
- Improving wheel brakes for pitching deck operations.

Additional modifications desired which would make the AH-64 weapons capability comparable to the AH-1T+ are:

- Addition of the AIM-9 Missile System for self-defense against the HIND.
- Incorporation of the TOW missile system. Hellfire and TOW are viewed by the Marines as complementary, providing a flexible, high-low weapons mix.
- Changing the turret and gun to a 20 or 25mm gun. The 30mm gun on the AH-64 is unacceptable for maritime operations due to its susceptability to shipboard radiation hazards.

(b) Marine Corps AH-1T's are presently supported by two Intermediate sites and 21 Organizational sites located on the East Coast, West Coast, aboard ships and overseas. The current plan for the AH-1T+ helicopters is to mix them with the existing AH-1T's to provide the Fleet and Marine Air-Ground Task Force Commanders with high/hot capabilities. If marinized AH-64's were procured to meet this deployment/employment need, they would also be mixed with existing AH-1T's and would require support at the same number of locations. The additional system support required for each aircraft is shown below; a M-197 20 millimeter gun/turret is assumed to replace the current Army AH-64 30 millimeter system so as to ensure safety and reduce additional systems support requirements:

AH-1T+	AH-64
T-700 engine	T-700 engine
Hellfire	Hellfire
	TADS/PNVS
	Airframe
	Unique Fire Control Avionics

Costs associated with this new support would involve R&D as well as APN. Cost estimates for the AH-1T+ are shown below:

	AH-1T+	APN per site	
System	R&D	I Level	O Level
T-700	2M	.5M	0M
Hellfire	1.5M	.3M	0M
Total	3.5M	.8M	0M

(FY-84 $)

Costs for AH-64 logistical support are not precisely identified because although major modifications are required, the exact configuration of a marinized AH-64 is yet to be defined. A complete new publications package would be required to meet Navy support needs. The AH-64 computer software would have to be reformatted into Navy language. These two items alone would require an estimated $30M R&D cost. The APN costs to support the marinized AH-64 at the Operational level sites are minimized because of the aircraft's Built-In-Test Equipment. The APN cost to support the AH-64 at Intermediate levels would be relatively high because of the Automatic Test Equipment required to support the aircraft weapons systems, TADS/PNVS FLIR and the other unique avionics.

(c) and (d) The estimated R&D, including qualification, and procurement costs are provided below for both aircraft:

TABLE 1
(FY-84 $, M)

	83	84	85	86	87	88
AH-1T+						
R&D	5.1	16.2	4.9	5.9	-	-
Procurement:						
Quantity			(22)	(22)		
Unit Flyaway			6.7	7.3		
Unit Flyaway + Support			8.8	8.5		
Total Procurement						
AH-1T budget		17.8	164.8	161.0	9.8	3.0
Increase for T-700			25.8	10.9	.3	.2
Prod. Deliveries	-	-	-	(10)	(24)	(10)

AH-1T+ Procurement Unit Cost: $8.9M

An estimated funding profile and delivery schedule for 44 marinized AH-64's has been prepared based on the April 1982 Hughes Helicopter budgetary proposal for 120 aircraft, adjusted to include GFE costs and total actual costs to the Navy:

TABLE 2
(FY-84 $, M)

AH-64:	84	85	86	87	88	89	90	91
R&D	62.2	69.8	35.3	10.2	-			
Procurement								
Quantity					(22)	(22)		
Unit Flyaway					14.4	9.9		
Unit Flyaway + Support					19.4	14.6		
Total Procurement				92.5	338.8	321.2	50.0	
Prod. Deliveries							(22)	(22)

Marinized AH-64 Procurement Unit Cost: $18.2M

(e) At this time, there are no programmed funds nor any approved plan to retrofit the 47 existing AH-1T's with GE T-700-401 engines. Therefore, no funding profiles or delivery schedules have been prepared for those aircraft. A conservative estimate of the unit cost to retrofit an existing AH-1T versus costs of production line installation in an AH-1T+ (i.e. retrofit versus forward fit costs) can be provided in Fiscal Year 1984 dollars:

T-700 forward fit = $1.1M

T-700 retrofit = $2.2M

Retrofit plans for Hellfire and AIM-9 modifications have been programmed and are listed below:

TABLE 3
(FY-84 $, M)

HELLFIRE:	FY-82	FY-83	FY-84	FY-85	FY-86	FY-87	FY-88
Cost				12.06	24.34	9.07	.816
Quantity				1	35	11	
AIM-9:							
Cost	4.524	1.398					
Quantity	22	24					

The planned mix of 47 existing AH-1T's with the attrition buy of 44 new AH-1T+'s allows the Marine Corps to maintain the current attack helicopter force level against attrition, while meeting oper-

ational requirements. The total cost comparison results in the following total R&D and production cost for 44 aircraft in FY-84 dollars:

	AH-1T+	AH-64
R&D	32.1	177.5
Production	393.6	802.5
Total	$425.7M	$980.0M

TILT ROTOR AIRCRAFT (JVX)

QUESTION: There are other advances in vertical lift aircraft, as you know, some of them classified. Wouldn't it make sense for the Marines to utilize an operational helicopter like the Blackhawk and take a slower, less costly approach to advance aircraft developments?

ANSWER: The Marine Corps urgently requires acquisition of strategically mobile and tactical flexible assault transports averting a lift shortfall which would otherwise occur due to attrition after 1991 and filling the well-established need for modern assault medium lift replacements. The Marine requirement, along with those of the other participating Services, is resulting in the development of the mature, advanced technology already successfully demonstrated by the Army/Navy/NASA XV-15 tilt rotor aircraft. This requirement has evolved over two decades and was foreshadowed by a 1958 Navy Bureau of Aeronautics 240 knot convertiplane design, the 1976 OSD Interservice Helicopter Commonality Study and the Navy's V/STOL studies of the late 1970's. The Navy is not developing JVX merely to advance rotorcraft technology, but to fill valid requirements.

The Army-developed UH-60A Blackhawk meets the Army's need for a utility helicopter to replace their UH-1 Huey fleet with helicopters capable of high, hot operations. Our need is to replace the aging and heavily attrited CH-46 Sea Knight fleet with aircraft capable of lifting loads currently requiring the CH-53D's payload capability. The CH-46E has a cabin capable of carrying up to 18 troops plus two gunners while a marinized H-60 would carry 11 troops plus two gunners on amphibious assault mission profiles; neither aircraft could lift the 8,300-10,000 pound payloads that are required. When the planned JVX assault force is compared to an alternative equal lift force using marinized H-60's and additional CH-53E's for the 8,300-10,000 pound loads, the larger H-60 force mix could require up to $2 billion more in total aircraft program costs, as well as 6 more LHD class ships and over 3,000 additional Marines to operate and maintain the larger alternative force. Given the limited number of amphibious deck spots for the U. S. Marine Corps use, the H-60 is simply not efficient.

Based upon both DOD and NASA analysis, the technical risk of scaling the XV-15 demonstrator technology to JVX mission size is reasonable and, according to the NASA-Ames Research Center 21 March 1983 assessment, a "non-issue." American industry has the technical expertise to field this technology in 1991.

A slower paced development is not technically required, does not meet the Marine Corps need and would cost more, not less, due to the stretch-out of Government and industry efforts requiring hundreds of engineers and other personnel.

E2C EARLY WARNING AIRCRAFT

QUESTION: Have either of the FMS letters of offer to Egypt and Singapore been accepted yet? If so, how many of these aircraft will be delivered concurrent with the Navy FY 1984 production? How much will these deliveries reduce the recurring and non-recurring costs of the 1984 E-2C production program?

ANSWER: As of August 1, 1983, the Navy had not received letters of acceptance from either Egypt or Singapore for procurement of the E-2C aircraft.

LAMPS MARK I PROGRAM

QUESTION: The Navy has decided to convert a number of the LAMPS MARK I decks to LAMPS MARK III in order to reduce the shortage of LAMPS MARK I systems. Please identify the LAMPS MARK I decks that will be converted to MARK III.

ANSWER: The planned conversion of LAMPS MK I capable ships to the MARK III system is not intended to reduce the shortage of LAMPS MARK I systems. Much of the present serious shortage of LAMPS MK I aircraft is the result of these aircraft being assigned to our primary ASW ships, such as the DD 963 and FFG-7, as an interim measure until these ships receive their ASW modernization. As the ASW main battery of our surface combatants, LAMPS MK III is the only system that can meet the requirement for a long range localization and attack capability to complement the performance of new generation sensors.

The ships which are to be reconfigured to the LAMPS MK III system are as follows:

Ship Class	Hull Number	Total
DD-963	980, 964, 968, 975, 978 989, 991, 971, 997, 979 990, 965, 969, 977, 983 963, 966, 970, 973, 974 992, 967, 972, 981, 976 986, 987, 988, 984, 982, 985	31
FFG-7	45, 46, 24, 28, 32 47, 48, 26, 30, 33 49, 8, 29, 31, 34	15
DDG-993	993, 994, 995, 996	4
CG-47	47, 48	2
Total		52

QUESTION: What is the cost of making these conversions to include the purchase of the extra LAMPS MK III systems?

ANSWER: The costs to procure the ship subsystems required to convert these ships to be LAMPS MK III capable are as follows:

	OPN							
FY	82	83	84	85	86	87	88*	Total
$M	42.8	84.8	81.8	125.7	98.2	78.9	9.7	521.9
Qty	(4)	(9)	(7)	(14)	(8)	(10)	(0)	(52)

*Battle Spares

O&MN funds required for the backfit of LAMPS MK III equipment as currently programmed in the FMP are as follows:

	O&MN (FMP)							
FY	84	85	86	87	88	89	To Complete	Total
$M	5.5	45.3	40.5	119.1	120.8	14.8	36.9	400.9
Qty	(1)	(7)	(5)	(13)	(15)	(2)	(9)	(52)

QUESTION: In light of the apparent lower cost of the LAMPS MARK I system, how do you justify making this program adjustment?

ANSWER: The LAMPS MK III weapon system is a vital element of our overall ASW strategy and is urgently needed to counter the current and emerging threat. There are no alternatives that can provide the required capability of LAMPS MK III.

LAMPS

QUESTION: The LAMPS III helicopter is roughly two and a half times more expensive than the LAMPS I version. For the increased cost, the LAMPS III has twice the range and payload, but at nearly $30 million per aircraft. Has the Navy considered leaving the LAMPS I helo line open to retain a mix of lower cost aircraft?

ANSWER: The SH-2F LAMPS MK I production line was reopened in 1982 in order to alleviate an aircraft-to-deck shortfall and ensure a satisfactory inventory of LAMPS MK I helicopters as the low end of a high/low LAMPS mix. The planned FYDP procurement of SH-2F helicopters is sufficient to meet active and reserve requirements through the remaining service life of LAMPS MK I capable ships. In clarification, LAMPS MK III has three times the range with twice the payload of LAMPS I, and system performance significantly exceeds LAMPS I in every functional characteristic.

QUESTION: At a time when new ships are delivering without LAMPS I helicopters due to the limited inventory, why is the Navy planning to close the production line in fiscal year 1986?

ANSWER: All new construction ships are programmed to receive the LAMPS MK III system as their ASW main battery. No new ships will be delivered with the LAMPS MK I system. Closing of the SH-2F production line is planned to occur as projected inventory matches identified requirements.

QUESTION: Last year, funds were earmarked to begin a LAMPS I helo prototype re-engining program to double the range. What is the status of the program?

ANSWER: Extensive analysis of the LAMPS I re-engining issue has determined that initiating this program is not cost-effective. Funds identified for an SH-2F re-engining prototype have been reprogrammed to meet more pressing requirements.

SH-60F

QUESTION: The Navy is budgeting $19.7 million for a new program R&D start, the SH-60F helicopter. This is to be a carrier-based helicopter which will have a new dipping sonar. What is the requirement for a new CV helo?

ANSWER: The Navy meets its carrier-based helicopter requirements with SH-3H helicopters. The SH-3 was first introduced in 1961 and has aging, reliability, and maintainability problems. The inventory of SH-3H helicopters is not sufficient to meet current requirements. The start of the SH-60F program in fiscal year 1984 will allow the Navy to replace the SH-3H helos over a period of five or six years beginning in the early 1990's. Commencement at this time also takes advantage of the recent SH-60B development experience. The SH-60F airframe and flight avionics

will be 75-80% common with the SH-60B. The major change will be that SH-60B mission avionics will be replaced by a tethered sonar.

The Navy is also addressing a serious shortfall of other medium helicopter assets, used extensively for SAR, logistics, and MEDIVAC missions. As the SH-3H's are replaced, it is planned to place them in a service life extension program and then assign them to less demanding mission areas.

QUESTION: How will this SH-60F differ from the SH-60B?

ANSWER: The SH-60F is derived from the SH-60B. The following table lists the SH-60B equipments removed, the equipments remaining, and those added to make the SH-60F mission system.

SH-60B Equipment Removed
IFF Interrogator - AN/APX-76
Interrogator, Computer - KIR - 1A/TSEC
Data Link - AN/ARQ-44
Communication Security Equipment KG-45
Magnetic Anomaly Detector (MAD) ASQ-81
ESM Set ALQ-142
ESM Processor AYK-14
Radar - APS 124
Emission Control C-10440
Signal Data Converter CZ-103A
Sonobouy Launcher
Acoustic Signal Processor UYS-1
(1) Sonobuoy Receiver ARR-75

SH-60B Equipments Remaining
(1) Sonobuoy Receiver ARR-75
Armament Signal Data Converter ASQ-165
Cockpit Instrumentation
Airborne Embedded Computer AYK-14
Data Handling and Display Group
Communications Group
Navigation Group

SH-60F Added Equipment
AQS-13F Dipping Sonar
AQS-13F Interface
Provisions for External Fuel Drop Tanks
Additional Weapons Station

The acquisition strategy of the SH-60F has been to make maximum use of existing equipment in the SH-60B. The SH-60B communication and navigation systems will remain in the aircraft. The SH-60B missions systems will be removed and replaced with the AQS-13F dipping sonar. Airframe changes will include an external fuel system, cabin redesign, and a sonar reeling machine installation. All changes to the SH-60B are well within the current state of the art and, therefore, there are no areas of high technical risk.

QUESTION: If the SH-60F evolves from the SH-60, why is the R&D program ($88 million) so large?

ANSWER: The Navy recognizes that the R&D program for the SH-60F has been criticized as too large and has consequently planned a restructured program. The Navy has proposed to OSD at a DSARC meeting on June 28, 1983, that the SH-60F be developed as an Engineering Change Proposal of the SH-60B. This alternative would shorten the RDT&E program to three years and would reduce the funding to a total of $55 million. The funding spread would be $19.7 million in fiscal year 1984, $29.4 million in fiscal year

1985, and $5.0 million in fiscal year 1986. Initial production would commence in fiscal year 1986 to produce a single SH-60F that would enter follow-on test and evaluation (FOT&E). This FOT&E would run concurrently with production of Lot 2 aircraft. It is possible to manage this program as an engineering change proposal. The airframe will be produced in the same production line as the SH-60B. The AQS-13F sonar will be installed at Sikorsky in the avionics final assembly area.

The SH-60F project strategy is to maintain maximum commonality with the LAMPS MK III SH-60B in order to take advantage of the qualifications which the SH-60B achieved prior to its approval for full production. Most test and evaluation needed to qualify the SH-60F has already been performed on the SH-60B. The SH-60F will use the same engines, RAST, and core avionics without change. The SH-60B will be modified only slightly to accommodate the sonar, an external fuel tank, an optimized Automatic Flight Control System for sonar hovers, and an additional weapon station. The new avionics equipment will be limited to a single sonar interface unit which is needed to interface the sonar data with the data bus. SH-60B software will be modified to handle sonar data and to display tactical decision aids which are unique to the CVBG inner-zone ASW mission.

LAMPS HELICOPTERS

QUESTION: The Fiscal Year 1983 Defense Bill struck funds to accommodate LAMPS III helos on the CG-47 class cruisers as not critical to the cruiser mission. Why are you still pricing the Fiscal Year 1984 cruisers to accept LAMPS III?

ANSWER: In Fiscal Year 1983 Congress did not strike funds to accommodate the LAMPS III helicopters. Congress eliminated funds associated with LAMPS III electronics, while funding the Recovery Assist, Secure and Traversing (RAST) System for LAMPS III helicopters. The mission of CG-47 class ships requires the installation of the LAMPS III electronics equipment in order to allow data linking of LAMPS III information to the ship for analysis and command, control decisions. Both the Senate and House Armed Services Committee Defense Authorization reports for Fiscal Year 1984 strongly support installation of LAMPS III electronics in CG-47 class cruisers.

QUESTION: What is the cost to backfit LAMPS III on frigates and destroyers?

ANSWER: O&MN funds required for the backfit of LAMPS III equipment as currently programmed in the FMP are as follows:

FY	CLASS	QUANTITY	COST	
84	FFG-7	1	5,519,423	5,519,423
85	DD-963	3	20,200,540	
	FFG-7	4	25,105,180	
				45,305,720
86	DD-963	4	35,303,640	
	FFG-7	1	5,165,200	
				40,468,840
87	DD-963	4	32,541,740	
	DDG-993	3	13,767,110	
	FFG-7	5	69,872,000	
	CG-47	1	2,909,130	
				119,089,980

88	DD-963	8	63,082,580	
	DDG-993	1	4,810,500	
	FFG-7	4	47,970,000	
	CG-47	2	4,895,040	
				120,758,120
89	DD-963	2	14,779,660	14,779,660

T-34C TRAINER

QUESTION: Is it true you are seeking funds for T-34s for your recruiting command? If so, how many of the 38 T-34s for $40.6 million requested are for the Naval Recruiting Command?

ANSWER: The Naval Recruiting Command currently operates fifty T-34B model aircraft which are an essential element in the Navy's pilot and naval flight officer recruiting programs. These T-34Bs are now over 26 years old and must be replaced soon if the Navy is to maintain this effective portion of its aviation recruiting program beyond 1988.

Of the 38 aircraft requested in the 1984 budget, nine are to be assigned to Navy and Marine Corps weapons ranges to replace more expensive jet attack aircraft which are performing range safety and aerial spotter duties there now. Twenty-five aircraft are to be assigned to the Naval Recruiting Command and four aircraft are to be assigned as backup and attrition inventory aircraft for the Naval Training Command.

QUESTION: What is the minimum number of new T-34C aircraft needed this year to support just the Naval Training Command?

ANSWER: The minimum number of new T-34C aircraft needed this year for the Training Command, alone, is four.

With the delivery of the FY 1983 lot of T-34C's, the Naval Training Command will have sufficient assets on hand to meet pilot/flight officer training requirements, including anticipated aircraft attrition, through mid-year 1986. The FY 1984 lot of T-34C's, currently under consideration, would begin to deliver aircraft in mid-year 1986. The anticipated attrition of Training Command T-34C's is four per year. The FY 1985 lot of T-34C's would commence deliveries in mid-year 1987. The number of T-34C aircraft needed to replace Training Command losses between mid-year 1986 and mid-year 1987 is four.

C-2 AIRCRAFT MULTIYEAR PROCUREMENT

QUESTION: You have requested $165.7 million for the second year's production of a multiyear contract. The House and Senate Armed Services Committees recommended funding for only six of eight aircraft. If this action is sustained, will the Navy have to terminate and/or renegotiate this multiyear contract and lose the savings prior year investments have made possible?

ANSWER: The contract is being renegotiated. The maximum amount that could be cut from the FY 84 budget without resulting in a significant loss of savings is $20 million, the reduction recommended by the Senate Armed Services Committee.

QUESTION: If so, what is the dollar impact of this renegotiation?

ANSWER: It is anticipated that there will be no cost increase as a result of the current renegotiation.

ADVERSARY (TRAINER) AIRCRAFT

QUESTION: You have requested $29.1 million for four aircraft as the first year of a proposed $254 million program to replace the F-5E. Candidate domestic replacement aircraft include the F-16 with the J-79 engine and the F-20. In order to insure competition in this procurement, why shouldn't this procurement be delayed at least a year until it is certain that the F-20 will actually go into production?

ANSWER: A number of companies, including General Dynamics (F-16/79), Flight International (Israeli Kfir), Dassault Breguet (French Mirage) and Northrop (F-20), have indicated interest in this program. The acquisition is being planned and conducted in a manner to ensure every opportunity for competition among all the interested companies. In addition, the acquisition is structured to allow more than one competing aircraft to be selected, and provides for re-opened competition, if beneficial, in the follow-on procurement years. The overriding concern is that any delay in program initiation will result in a commensurate delay in aircraft deliveries to the squadrons. Currently, the Navy possesses too few supersonic adversary aircraft to train deploying aircrews effectively. This fact, coupled with the substantial increase in adversary training requirements which will occur with the introduction of the F/A-18 and additional air wings for the new aircraft carriers, requires a high degree of priority in maintaining the current program schedule.

QUESTION: Would you explain what aircraft you can buy with a unit cost of $7.3 million ($29.1 million ÷ 4) as budgeted?

ANSWER: The $29.1 million is based upon an earlier (1981 timeframe) estimate of the cost to procure four F-5E aircraft with full avionic systems/support. Since that time it has been determined that the F-5E will not meet the long-term threat simulation requirement (MIG-23 and subsequent Soviet-built fighter aircraft) and the Navy is conducting a competition for higher performance aircraft. The Navy plans to procure as many as four aircraft with a minimal avionics suite and no radar within the FY-84 budget constraints.

FLEET ELECTRONIC WARFARE SUPPORT GROUP AIRCRAFT

QUESTION: You are requesting $26.4 million for the purchase of a single electronic warfare support training aircraft. How is this mission being accomplished now and why is the additional aircraft needed?

ANSWER: Now only 32% of the fleet's requirement for ECCM training against large aircraft threat jamming can be satisfied. This additional aircraft will provide the capability to:

(1) satisfy 59% of the training requirement to hone operators'

skills in working through jamming in a realistic combat environment and use built-in ECCM techniques, and

(2) test EW equipment in an environment that replicates combat conditions.

Large aircraft are required in this mission to provide simulation of large threat counterparts, provide payload capability for the heavy jammer power/equipments and meet long range/endurance/speed requirements. The mission is currently performed by two electronic warfare configured NKC-135A aircraft under the permanent operational control of COMFEWSG. They are maintained and operated by specially cleared and selected crews under a contract support agreement. Aircraft use varies from single unit training to major U.S. naval force operations in a variety of exercise scenarios (e.g., war-at-sea, battle group predeployment workup and open ocean transit, amphibious landing, mobile sea range, open ocean missile exercises, etc.) Operations extend from U.S. contiguous waters to the Mid- and Western Pacific, Mediterranean, Caribbean and Northern Atlantic. Therefore, to improve fleet readiness in a "dirty EW" environment, this additional capability is required.

QUESTION: What would be the impact of delaying the production of this aircraft at least one year?

ANSWER: Delaying procurement of this used aircraft and equipment by one year would slip its initial operational capability by seventeen months because of production line restart for unique avionics and required contract coordination lead time. The fleet training shortfall would remain for that extended period. Also, the current commercial market for this type of used aircraft is very favorable. This availability may decrease with delayed procurement. Delayed procurement would also increase procurement costs.

PLANNED CONFIGURATION CHANGES

QUESTION: You have recently cancelled plans to incorporate some $78M of pre-planned configuration changes into your 1983 aircraft construction program. For the record, identify all pre-planned configuration changes proposed in your 1983 budget submission by title and include by year the funding profile to support each. To the extent that this funding profile is different from your 1984 budget submission, indicate what the current funding profile is. As a separate category, identify all new configuration changes proposed for incorporation in the 1984 program to include their funding profiles. For those configuration changes already cancelled, so indicate with the date of cancellation.

ANSWER: The following is a comprehensive listing of all Engineering Change Proposals (ECPs) whose cancellation contributed to reprogramings:

$000

Title	FY 1983	FY 1984
Action #83-32		
F-18 Drop Tank	$17,775	$ 1,786
Action #83-50		
A-6E Generator	280	0
A-6E Battery Improve.	220	0
EA-6B ARC-182/ARC-190/KY-75	4,400	0
EA-6B Forward Canopy Turtleback	200	0
AV-8B Hot Exhaust	1,400	1,129
F-14A AN/ASW-27B	3,500	0
CH-53E LOX Provisions	200	71
SH-60B VOX Inhibit	25	0
SH-60B Upper UHF Antenna	130	22
SH-60B Monopole Antenna	420	224
SH-60B AI Turn Rate	25	0
E-2C Link 4A	2,400	0
SH-2F Misc. Change Allow. Funds	800	0
Action #83-63		
A-6E HARM/ALR-67	2,100	1,900
F-14A Seekerhead Position	1,272	77
F-14A Weapons Rail Improvement	792	0
F-14A Drop Tank Mods	72	0
F-14A AWG-15 Interface Improvement	24	26
CH-53E LTN-211 OMEGA	1,210	702
CH-53E Capa. Discharge Chip Detector	440	117
Action #83-70		
F-14A Program Signal Processor	40,000	33,223

ECPs are discretely identifiable in the first year of their inception. Once introduced into production aircraft, however, these changes are incorporated in the aircraft specification and become part of the baseline configuration. As such, the follow-on costs in subsequent years are wholly subsumed within the contract price and only those additional items of Government Furnished Equipment (GFE) necessary to effect the changes are quantifiable. For those FY 1983 changes that were deleted, the list above reflects anticipated follow-on costs in FY 1984.

The Secretary of the Navy has endorsed many cost reduction initiatives besides the ECP review process. ECP control procedures contribute to SECNAV's increased reliance on fixed price contracts, for example. Currently, the list of potential changes for FY 1984 is undergoing SECNAV review and those that are approved will be incorporated, wherever possible, into the pricing for the production contracts. Therefore, the list of FY 1984 ECPs is, by its very nature, tentative until the SECNAV decisions are made. Should a timely decision be forthcoming, the ECP will be funded from the airframe/CFE line. Otherwise, funding will be identified in the Change Allowance line.

ECX

QUESTION: The Navy is requesting $71.8 million in R&D and $107.7 million in advance procurement for the ECX strategic communications aircraft. This is a modified, EMP-hardened 707 which will replace existing EC-130's.

Since the ECX airframe is 80 percent common to the E-3A AWACS, couldn't you have opted for used 707 aircraft rather than production aircraft?

ANSWER: Used aircraft, including the Boeing 707, were considered for the ECX and were specifically permitted in the Navy RFQ submitted to industry in March 1982. However, no proposals for used aircraft were received, even though eleven of the 36 companies who received copies of the RFQ were capable of overhauling used aircraft.

Navy investigations of this issue have shown that modifying used commercial aircraft to the ECX configuration would require substantially more RDT&E funds, approximately the same amount of procurement funds, and result in an aircraft with a lower expected service life than a program based on a derivative of Air Force's E-3A (AWACS) aircraft in a new production version. When converting commercial airframes to ECX requirements, the cost of the used air vehicle is only a small portion of the total cost.

The fact that the Navy specifically requested potential bidders to explore the used aircraft approach and none chose to respond with that approach verifies the Navy's original finding that the most economical strategy lay with a new production derivative aircraft.

QUESTION: Have you considered buying other commercial aircraft available at good prices from U.S. airlines?

ANSWER: Used Douglas DC-8 aircraft were also considered a potential source for conversion to ECX configuration, but, as indicated above, no offers for this airframe were submitted in response to the Navy RFQ. In a letter to the Navy Contracting Officer, McDonnell Douglas Company stated that they would not submit an offer for used DC-8 aircraft because "...we do not believe we would be cost and schedule competitive...." Since the DC-8 has never been converted to military use or EMP hardened, it is likely that the acquisition costs would be even higher than those for used 707's.

QUESTION: The need for a faster replacement for the EC-130 is based on Pacific Ocean coverage requirements. Are there also cost benefits to going with ECX over the EC-130?

ANSWER: Yes, there are cost advantages with the ECX over the EC-130; but, beyond that, the need for ECX involves much more than just a faster aircraft. In order to meet the two-ocean, continuous coverage requirement, improvements in virtually every area of aircraft performance - payload, range, endurance, survivability, as well as speed - are vital. Irrespective of the need to improve the TACAMO aircraft's mission performance, there are definite cost advantages with an ECX TACAMO system over the EC-130. The operation of state-of-the-art aircraft for this mission will reduce maintenance man-hour requirements and lower support life cycle costs. Navy investigations have shown that a force of 15 ECX could accomplish the required two-ocean mission as compared to the need to field virtually twice that number of EC-130's (which would still

not completely cover requirements because of individual aircraft performance deficiencies). A thirty year life cycle cost analysis, comparing the costs of acquisition and ownership of 15 ECX versus 29 E-130's, revealed an overall savings of 1 billion dollars (in FY 1981 constant dollars) with the ECX program:

Life Cycle Costs (FY81$)	
15 ECX	$3.8B
29 EC-130	4.2B

QUESTION: Why do you require an accelerated procurement schedule which requires such heavy up-front procurement funding for ILS (Integrated Logistics Support)?

ANSWER: Certain ILS elements such as technical manuals, training, support equipment and spares must be procured starting in FY 1985 to support the Navy developmental and operational flight test program and the aircraft delivery schedule.

The Navy testing program commences in 1987 and these items must all be available at that time or the test program cannot be supported.

The deliveries of fleet service E-6A aircraft will commence in FY-88. The Navy's independent operational test agency insists that all logistics support elements provided in support of the OT&E program be of the same quality as that which will be provided to the fleet. The extensive ILS program planned for FY 1985 is critical to on-time delivery of all logistics elements for both the OT&E program and fleet introduction. Delayed funding of these aspects of the program would markedly affect the progress of the evaluation and the operability of the first in-service aircraft.

QUESTION: Why can't the program continue with just R&D funding this year?

ANSWER: The advance procurement funds are required to procure long lead airframe, engine, mission avionics, and the nonrecurring production engineering, tooling, and test equipment required to be placed on order up to 12 months in advance of the first production funding year (FY 1985) in order to protect the aircraft delivery schedule. Without advance procurement funds in FY 1984, aircraft deliveries will be delayed one year and result in failure to achieve the JCS-directed Initial Operating Capability (IOC) date.

SIMULATOR MODIFICATIONS

QUESTION: Our review of the Navy's P-43 exhibits on the flight simulator program indicates that some $114 million for modifications is included within the aircraft procurement lines whereas another $18.6 million is requested and carefully justified as modifications. For example, you seek $47.2 million for P-3 simulator modifications and $21.2 for F-14 simulator modifications yet there is no reference to these modifications in the procurement justifications. Admiral Schoultz, can you tell me how many aircraft procurement dollars have been requested for the modification of flight simulators?

ANSWER: For FY 1984, $114.9 million in aircraft procurement

funds have been requested for the modification of flight simulators which support in-production aircraft programs in Budget Activities 1-4. These modifications include both updates to flight simulators resulting from engineering changes to the production aircraft, such as the P-3C Update III (Proteus), the F/A-18 Block F-87 Aircraft Configuration, and the F-14 Block 130 Update, and trainer-peculiar changes which enhance the training effectiveness, reliability, maintainability, etc., of flight simulators, such as the radar video simulation system modification for the E-2C tactics trainer. Funds requested for these flight simulator modifications, as reflected in the P-43 exhibit, are as follows:

Production Aircraft Program	Funding Request for Flight Simulator Modifications (dollars in millions)
A-6E	1.475
AV-8B	1.000
C-2A	.534
E-2C	10.793
EA-6B	11.038
F-14	21.195
F/A-18	10.359
SH-2F	1.800
CH-53E	1.014
P-3C	47.233
SH-60B	5.885
T-34C	2.336
TH-57	.299
	$114.961

For FY 1984, $18.0 million has been requested under the Common Ground Equipment Budget (P-1 line item 84) for trainer-peculiar modifications for flight simulators which support out-of-production aircraft and general training programs.

QUESTION: Would you explain why these modifications, unlike all others, are being funded out of aircraft procurement lines and not on a separate modifications line?

ANSWER: It is Navy policy to budget and fund under the aircraft procurement line those modifications to flight simulators resulting from modifications to production aircraft. Flight simulator changes caused by modifications to out-of-production aircraft and retrofit only changes to in-production aircraft are identified and budgeted under each separate Operational and Safety Improvement Program within the Modification of Aircraft line (Budget Activity 5).

QUESTION: In light of your questionable financial management practices documented in the F-18 program, what assurance is there that the $114 million your P-43 exhibits indicate is funded within the procurement lines for flight simulator modifications will be spent on modifications and not diverted to whatever the Navy chooses to fund?

ANSWER: In view of the fact that the FY 1982 F-18 prime contract has been signed for a firm fixed price (FFP), there is no question that there will not be an overrun. The F-18 FY 1983 and FY 1984 airframe/CFE procurements are currently being negotiated together and a firm fixed price contract will be awarded; therefore, there will be no overrun since it is FFP. However, the FY 1982 contract price was settled too late to be

used as the basis for pricing in the FY 1983 and FY 1984 budgets and the austerity therein may reflect underbudgeting, which may require the use of support funds, including trainers.

While it is accepted Navy policy that budgeted peculiar training equipment (PTE) funds (line 14 of the aircraft procurement P-5 cost sheet) are earmarked to be spent on training equipment acquisition or modification including the $114 million for Flight Simulator procurements or modifications identified on the P-43 exhibit, changing requirements within the training community or aircraft programs potentially could require increases or decreases to these budgeted amounts. If exceeding a threshhold of $10 million is required to a P-1 line item, a DD1415 Reprogramming Request will be submitted.

EP-3 AIRCRAFT

QUESTION: The Navy proposed a reprogramming earlier this year to initiate the EP-3 program with FY 1983 advanced procurement funds. That request was turned down. $9.6 million of the money was from the EP-3 upgrade program. Are those funds still available to be transferred forward to 1984?

ANSWER: The funds will be restored in keeping with Congressional direction.

QUESTION: Since the 1983 reprogramming of advanced procurement funds was denied, is the 1984 procurement program executable as budgeted? If not, what is the Navy's current budget plan?

ANSWER: The program is not executable as budgeted since the request to reprogram the $24.6 million advance procurement funds was denied. Restoration of $24.6 million in the FY 1984 program will permit execution of the program.

SPARE AND REPAIR PARTS - UNFUNDED CARRY-OVER'S

QUESTION: Annual budget submissions for aircraft spares and repair parts include large "unfunded carry-overs" which represent item requirements that were not funded in previous years. However, item requirements are based on dynamic factors and constantly change with the passage of time. Consequently, many of the past requirements that make up the unfunded carry-over may no longer represent valid needs.

1. What is the DOD/service branch rationale for including previously unfunded requirements in current budget requests for aircraft spares and repair parts?
2. What safeguards or revalidation procedures are taken to assure that these previous year requirements still represent valid needs?
3. What are the total unfunded carry-over's included in each services aircraft spares and repair parts budget request for fiscal year 1984?
4. Have these unfunded carry-over's been revalidated according to existing procedures?

ANSWER: Budget requests for aircraft spares and repair parts are computed based on the most recent semi-annual line item stratification. This stratification projects deficiencies that will occur during the remaining six months of the current year,

the apportionment year, and the budget year. The total dollar value of the requirement for each of these periods is then compared to the funding programmed for that year to determine the unfunded requirement that must be identified. In addition, requirements for future outfitting programs are calculated using a zero-based recomputation method and compared to funds programmed to determine the unfunded. Thus all requirements are revalidated prior to determination of the resultant unfunded using a zero-based recomputation technique.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

A-6/F-14 PRODUCTION

QUESTION: I understand the Navy has made definite decisions to proceed with the development of advanced versions of the A-6 and the F-14. Please describe your plans for these two aircraft.

ANSWER: There are plans to improve both of these aircraft in order that they will remain capable of meeting the Navy's requirements through the year 2000-2005. Numerous improvements are being examined to determine benefits versus threat versus cost.

The goal of the A-6 upgrade program is to increase mission effectiveness (incorporate a high resolution radar); increase survivability (provide an air-to-air surveillance capability, reduce the targeting signature presented to the enemy, and reduce battle damage vulnerability); and increase operational readiness (improve overall reliability and reduce maintenance manhours per flight hour).

The F-14 upgrade program addresses the following major areas: an alternate engine (increase reliability and maintainability, decrease operating costs, and remove existing combat limiting throttle restrictions); an Avionics Integration Program (incorporate JTIDS, ASPJ and AMRAAM, and maximize use of digital technology to improve reliability and growth for future programs); and a Radar Improvement Program (improve ECCM capabilities and improve reliability).

Any new design replacement aircraft start this year would not be available until the mid-90's. Additionally, minor improvements to existing A-6 and F-14 aircraft are required to meet the threat over the next ten years. However, the threat can be met for about twenty years with significantly improved versions of these aircraft. Cost estimates for the development of a replacement aircraft, for example VFMX, were more than double those for the improved versions. Additionally, present day low risk technology does not appear to provide any comparable doubling of capability. Therefore, development of a new aircraft for the A-6 and F-14 missions has been deferred. The technologies will continue to be examined; and if, at some future date, significantly improved capabilities can be produced and the threat confronting us requires it, the affordability issue will be reexamined.

QUESTION: There have been press reports that the Navy has been considering a "break" in the production line for these two aircraft as a way to generate the funds necessary to pay for the

initiation of the more advanced version. What are the Navy's plans in this regard?

ANSWER: All current aircraft inventories and annual aircraft procurement are closely examined in each budget cycle to present a balanced program which optimizes our capability against the threat. The options regarding the A-6 and F-14 production lines are presently being considered in contractual discussions. Therefore, no statement is available regarding these production lines at this time.

JFK AIR WING

QUESTION: I understand the Navy has been conducting an evaluation of a specially configured Carrier Air Wing aboard the USS John F. KENNEDY. This air wing consists of F-14's, A-6's, E-2C's, KA-6's and C-2's. Please provide the committee with the results of your evaluation to date.

ANSWER: The [deleted] air wing on KENNEDY is part of a program to determine the optimum air wing mix for the next decade. It will be evaluated in comparison to an [deleted] air wing which will be formed on the CONSTELLATION and to an [deleted] air wing which will be formed on the CORAL SEA. To date the KENNEDY has completed pre-cruise work-ups and participated in a North Atlantic NATO exercise. The KENNEDY will deploy to the Mediterranean theater of operations in [deleted]. A comprehensive matrix has been constructed to measure mission effectiveness and operational capability of the KENNEDY air wing. The results of the matrix will be compared with a similar evaluation matrix for the CONSTELLATION and CORAL SEA air wings. The CONSTELLATION will deploy in (d) and the CORAL SEA will deploy in (d). It is, therefore, premature to place any evaluation on the KENNEDY air wing at this time.

QUESTION: In your personal professional opinion, if you were commanding a carrier, would you prefer an air wing configured as the JFK's is?

ANSWER: The F/A-18 strike fighter with its unique capabilities adds a new dimension to carrier aviation. I feel that it is important that the Navy make a thorough evaluation of the various mixes of aircraft for the carrier air wing in order to optimize our capabilities. The air wing aboard KENNEDY is an important part of that evaluation but preference cannot be stated until the entire evaluation is complete.

VTXTS

QUESTION: At the March 8, 1983, Navy budget overview hearing of this subcommittee, I submitted certain questions for the record on the subject of the Navy's VTXTS program. The answers I received to some of those questions cause me concern. The following exchange caused me particular concern: "QUESTION: Did the Department of Defense or the Department of the Navy receive any communications from or meet with any representatives of the government of the United Kingdom concerning the VTXTS competition, defense procurement offset agreements involving VTXTS, or discussions involving the Rolls Royce Adour engine? ANSWER: To the best of our

knowledge, there were no such meetings or communications between the Navy and the government of the United Kingdom." Since I received this response, copies of the documents listed below have come into my possession. I have included copies of them for your inspection in formulating your response to this question.

A) A February 21, 1982, handwritten "Dear Cap" note from "Nicko Henderson", The British Ambassador to the U.S., conveying to Secretary Weinberger a point paper urging action to keep the British Aerospace Hawk as the Navy's VTXTS aircraft.

B) A March 5, 1982, memorandum from the Secretary of the Navy to the Deputy Secretary of Defense, then Frank Carlucci, in which he discusses what the Navy must do to "honor the commitment to the British" on VTXTS.

C) A March 13, 1982, letter from Secretary Weinberger to His Excellency, Sir Nicholas Henderson, responding to Henderson's note of the 21st of February, and stating "we support both the Navy requirement for an advanced jet trainer and the selection of the Hawk to satisfy the requirement."

D) A March 15, 1983, memorandum for the Secretary of the Navy signed "Cap", declaring "I will continue to support you in your defense of the VTXTS program on the Hill," and explaining Ambassador Henderson's concerns regarding the program.

and finally, E) a PBD Continuation Sheet, Number 117, page 3, dated November 23, 1982, which states that the "Navy's plan would buy a McDonnell Douglas training system based on the British Aerospace Hawk trainer. The Hawk would be manufactured in Great Britain and final-assembled at the Douglas, Long Beach, California, facility. The program implements a country-to-country offset agreement."

Having now reviewed the documents listed above, in your opinion, was the written answer the Navy provided to this committee honest, responsive, and accurate?

ANSWER: The written response provided to the original question was honest and accurate, since the context in which the original question was posed was considered to refer to the period before the McDonnell Douglas VTXTS entry, based on the British Aerospace Hawk, was selected as the winner in November 1981.

QUESTION: Taking into account the existence of the documents listed in Question 5 above and their contents, please provide a full and accurate answer to my original question.

ANSWER: As previously stated, the source selection that resulted in the selection of the McDonnell Douglas system based on the Hawk aircraft was clean and without outside influence. Since the selected system is based on a British design aircraft, we have, as a result of the source selection, in effect incurred an international obligation. This obligation is a result of the source selection, not vice versa. In addition, the obligation does not include an offset agreement. Items A through D in the previous question, were all written after the source selection, and merely reflect a desire of all concerned that the Navy get on with the selected program. None of the items implies any agreement that pre-dates the November 1981 source selection.

QUESTION: Please provide this committee a copy of any offset agreement between the United States and the United Kingdom involving the British Aerospace Hawk.

ANSWER: There is no offset agreement.

QUESTION: There were published reports as early as February of 1981 describing a visit by British Prime Minister Margaret Thatcher during which she was reportedly trying to arrange a deal involving U.S. purchase of the Hawk. Again, in our March 8, 1983, hearing, I asked the following question for the record: "QUESTION: Was the selection of the winning contractor in the VTXTS competition affected in any way by any agreement with the United Kingdom, formal or informal?" The Navy's written response was as follows: "ANSWER: No. The VTXTS competition was open and in accordance with the DOD acquisition process. The principal selection criteria against which the systems were evaluated were: technical merit of the proposed baseline system concept; baseline system costs; quality of the proposed pre-Full Scale Development effort; and cost of the proposed pre-Full Scale Development effort. The McDonnell Douglas system based upon the British Hawk aircraft was evaluated as being technically superior to the other proposed systems and was assessed as having the lowest projected life cycle cost." Did Margaret Thatcher ask us to buy the British Aerospace Hawk as part of a larger deal?

ANSWER: Our original answer is correct. We have no knowledge of any conversations between Mrs. Thatcher and the U.S. concerning the VTXTS as part of a larger deal. The source selection process was the result of strict adherence to the DOD acquisition process.

QUESTION: In the Navy's answer to my question quoted above in question 8, life cycle cost was cited as a reason for selecting the Hawk. Yet, for a period of time last year, the Navy was unable to supply this committee with a life cycle cost figure. Your most recent estimate for life cycle cost was $10.1 billion in then-year dollars. What is your present life cycle cost estimate?

ANSWER: The estimate submitted in March 1983 indicated $10.1 billion (TY $'s) for life cycle operation and support (O&S) costs. The latest estimate for life cycle O&S cost is $7.6 billion in then year dollars.

QUESTION: I have in my possession a Navy POM-85 document showing slippage in both the budget for the "wet" version of the Hawk, the T-45A, and the initial training capability, or ITC date. What is the planned ITC date under POM-85, and why has it slipped?

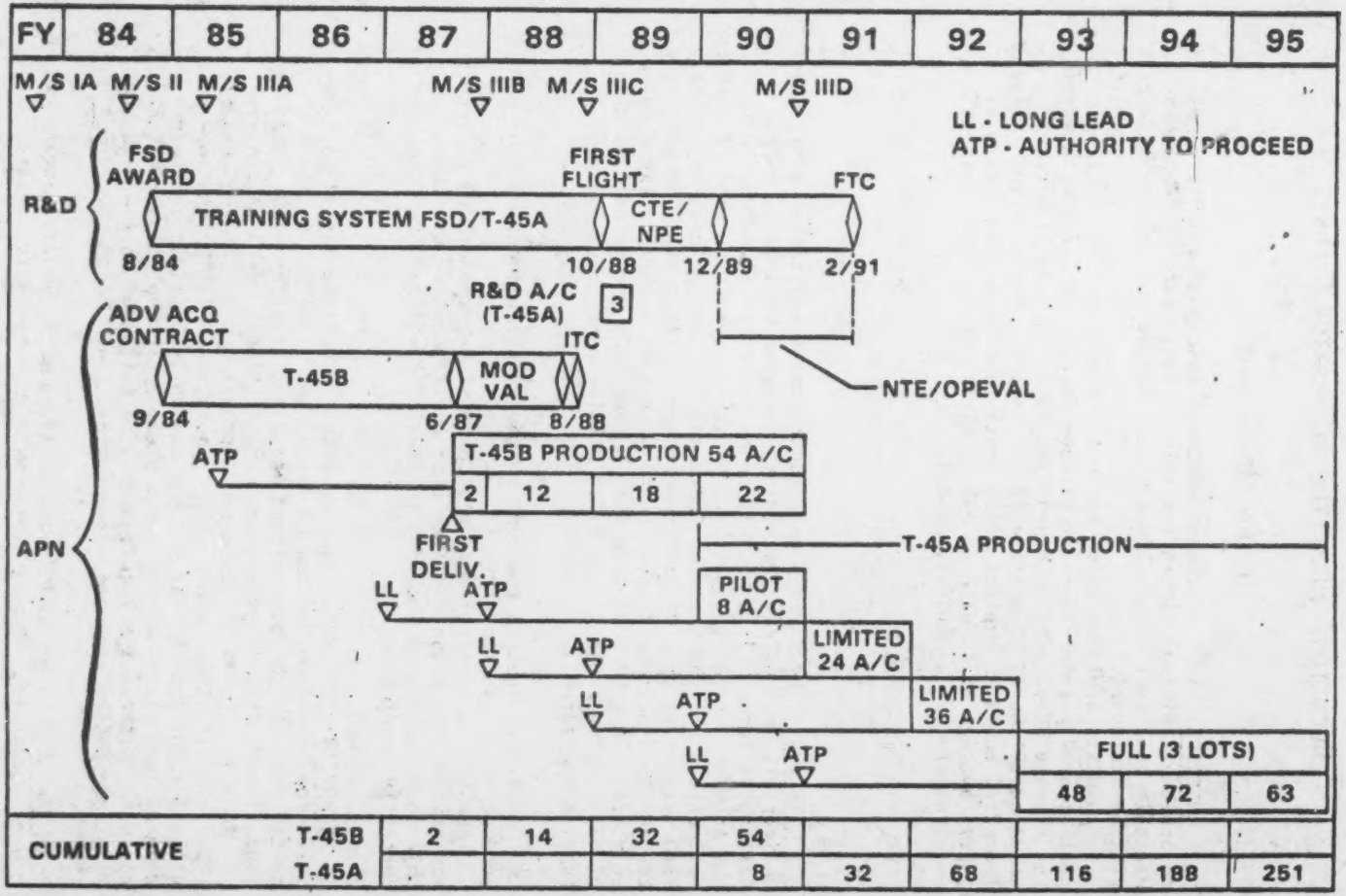
ANSWER: POM-85 is a working document that is currently under discussion within DOD. We will be pleased to answer the question in detail after the POM process is completed and the resulting President's FY-85 budget is presented to the Congress.

QUESTION: What are the cost and budget consequences and the cost and budget causes of this slippage?

ANSWER: It would be inappropriate to comment on causes or consequences until the POM process is complete and the resulting President's FY-85 budget is presented to the Congress.

QUESTION: Please provide the committee with the Navy's most recent estimates of the VTXTS program's research and development cost, procurement cost, operation and support costs over a twenty year period from its initial training capability date, schedule and milestones for both procurement and research and development, and the share of jobs and dollars under this program which will be spent outside the United States.

ANSWER: The current estimate for the total VTXTS acquisition cost (R&D and procurement) is the same as reported in March and indicated in the current President's budget. A revised estimate of the mix in R&D and APN is under negotiation and will be updated in the current budget cycle. Operation and support costs for a twenty year period are estimated at $7,543.6 million (TY $'s). Based on an approximate 50%-50% workshare ratio between McDonnell Douglas and British Aerospace for development and manufacture of the aircraft only, it is estimated that 39% of the total VTXTS acquisition cost, including the training system, will be spent outside the U.S. This equates to approximately 48% of the aircraft acquisition cost. Schedule and milestones for both R&D and procurement are indicated in the following graph:


FY 84 85 86 87 88 89 90 91 92 93 94 95
M/S IA
M/S II
M/S IIIA
M/S IIIB
M/S IIIC
M/S IIID
LL - LONG LEAD
ATP - AUTHORITY TO PROCEED
R&D
FSD AWARD
FIRST FLIGHT
FTC
TRAINING SYSTEM FSD/T-45A
CTE/ NPE
8/84
10/88
12/89
2/91
R&D A/C (T-45A)
3
ADV ACQ CONTRACT
ITC
T-45B
MOD VAL
9/84
6/87
8/88
NTE/OPEVAL
ATP
T-45B PRODUCTION 54 A/C
2
12
18
22
APN
FIRST DELIV.
T-45A PRODUCTION
LL
ATP
PILOT 8 A/C
LIMITED 24 A/C
LIMITED 36 A/C
FULL (3 LOTS)
48
72
63
CUMULATIVE
T-45B
2
14
32
54
T-45A
8
32
68
116
188
251

QUESTIONS SUBMITTED BY SENATOR STENNIS

MISSION CAPABLE RATE

QUESTION: Your statement mentions that your long-term goal is to achieve a minimum aircraft mission capable rate of 70 percent. Has this rate ever been achieved, and when do you believe this rate will be achievable?

ANSWER: Naval Aviation has not yet achieved its long term goal of a 70 percent aircraft Mission Capable (MC) rate. However, the average MC rate through June for FY 83 exceeds 66 percent compared to the FY 82 average of 63 percent. Based on this steady increase, the Navy expects MC to continue to rise and attain a yearly average of 70 percent during FY-85, if logistic support requirements are adequately funded.

ATTACK HELICOPTERS

QUESTION: The Marines have requested 44 additional AH-1T Cobra Helicopters to complete the equipage of your anti-tank, attack helicopter force. Is this helicopter currently in production?

ANSWER: The AH-1 line is currently in operation producing AH-1S helicopters for the National Guard and for foreign military sales. With current orders, it will remain open until April 1986 affording the AH-1T+ procurement the benefit of having a skilled labor force in place. Only $6.8 million will be required for retooling, all of which is included in the $17.8 million advance procurement funding requested.

QUESTION: What is the cost to reopen the production line to produce these 44 aircraft?

ANSWER: A total of $6.8 million will be expended to refurbish and modify the production line with AH-1T peculiar tooling. This $6.8 million is included in the $17.8 million the Committee is currently considering.

QUESTION: The House Armed Services Committee denied your request for long lead funding in fiscal year 1984 due to their belief that FY 1985 procurement would not be affordable. What are your alternatives to procurement of additional AH-1T helicopers?

ANSWER: The AH-1T procurement programmed for FY 1985 and FY 1986, with its long lead funding requested in FY 1984 is considered affordable by the Marines and is included in our budget requests and plans. There is no other attack helicopter which can meet Marine Corps requirements, be delivered in the required timeframe and be procured as economically as the AH-1T.

QUESTION: Your goal is six active and two reserve attack helicopter squadrons. The 44 Cobras will give you three active squadrons and one reserve squadron. What are your plans for the remaining squadrons?

ANSWER: Our immediate goal is to fill the inventory shortfall in our current three active squadrons and our one reserve squadron. We recognize a requirement for three additional active squadrons plus one reserve, but programming for these forces has not been

approved. Three additional squadrons will have to compete for resources within the Department of the Navy, and will be considered during future POM evolutions.

TILT ROTOR AIRCRAFT (JVX)

QUESTION: The Army and Air Force are reportedly trying to stay out of the JVX tilt rotor aircraft program. Is it really possible that the Marines' requirement could justify this program on its own?

ANSWER: JVX is an OSD approved 4 Service development program based upon the Army, Navy and Air Force Secretaries' Memorandum of Understanding of 4 June 1982 for shared development costs, as modified by the Under Secretary of Defense (Research and Engineering) direction of 27 December 1982. The uniformed Service Headquarters supported the needs for JVX with the JVX Operational Requirement which was approved 14 December 1982. OSD has already reviewed the acquisition strategy, mission needs, technical risk and estimated development and procurement cost of JVX. This review resulted in the Milestone I approval for release of the Preliminary Design Request for Proposal which occurred on 8 December 1982. The Preliminary Design contract is presently underway for a common configuration of wing, rotor, fuselage and engines.

The development and procurement costs for JVX are certainly justified, especially when considering the substantial benefits for conventional forces' strategic mobility and tactical flexibility which are inherent in JVX's speed, range and payload capabilities. The Marine Corps, using the Army's initial estimates of acquisition costs which were provided for the Milestone I review, analyzed JVX cost-effectiveness for their assault medium lift need. The analysis indicated that, for equal lift capabilities alone, JVX could have a nearly $2B program cost advantage as compared to a procurement of modified off-the-shelf helicopters. The planned 1994 Navy amphibious force levels for ships are keyed to JVX's high productivity which is essential to a rapid build-up of combat power ashore. Compared to an off-the-shelf helicopter force, JVX avoids the costs of up to 6 LHD class ships, ships in excess of those in the 1994 Navy shipbuilding plans. Estimates for manpower savings indicate that the smaller size of an efficient JVX assault force, incorporating composite materials and 1980's technology for improved reliability and maintainability, results in manning levels which are 3,000 Marines less than an equal lift off-the-shelf helicopter force. The order of magnitude of these cost avoidances is striking, considering the quantum increase in defense capabilities that JVX will provide. Therefore, while the benefits of JVX for multi-Service users increase overall savings and capabilities, it is apparent that the Marine Corps' requirement would justify such a development on its own.

QUESTION: There is little doubt that the Marines need a replacement for the aging CH-46 in the medium-lift assault role. But what about a possible "marinized" version of the Blackhawk for this mission? Wouldn't this do the job?

ANSWER: The Marine Corps has continuously reviewed its needs for assault medium lift since the late 1960's. This review included specific requirements to meet the needs for medium assault transport. As early as 1958, what was then the Navy's Bureau of Aeronautics outlined a program to lead to a 240 knot "convertiplane" for Marine and other naval uses. This convertiplane was a forerunner of

the Army/Navy/NASA tilt rotor aircraft project which resulted in the successful XV-15 demonstrators now undergoing tests for DOD and NASA. The Marine requirements have evolved over the intervening years in measured response to the need for strategic mobility and tactical flexibility for Marine Air-Ground Task Forces to meet and beat the threat while accomplishing naval or land war missions. The key elements of these requirements were in the Marine Medium Assault Transport (V/HXM) need statement, approved by OSD in 1981, and were a logical result of force modernization to meet worldwide general war and crisis management tasks as well the practical ability of American industry to develop and field suitable technology at an affordable cost. These key elements include: high cruise speeds for good transport productivity from constrained amphibious shipping ensuring a rapid build-up of combat power ashore; fuel sizing for self-deployability, two wave 50+ nautical mile amphibious assaults and for extended radius of action missions once ashore, such as raids and special operations; carriage of 24 combat-loaded Marines in crashworthy seating; cargo capability of up to 10,000 pounds to a 50+ nautical mile radius; integral ramp and cargo handling system; shipboard compatibility and a 1.2 ship spotting factor which is critical to fitting the force on the planned 1994 amphibious shipping. These requirements are contained in the JVX requirement.

The Marine Corps has followed the progress of aircraft technology, including the maturation of the H-60 program. The Army's UTTAS need, which resulted in the UH-60A replacing the Army's UH-1 aircraft, required a significantly smaller and less capable aircraft. In 1972, accepting the disparate needs, OSD directed that the Army proceed unilaterally on UTTAS, with the Marine need to be addressed by a larger, medium lift transport. In 1976, the Navy formulated a Decision Coordinating Paper in response to the request of the Congress. This DCP included four variants of what became the UH-60A; the largest variant was still significantly short of basic Marine requirements. As a result, the Marines proceeded towards the development of a V/HXM aircraft and, as an interim measure, upgraded the CH-46D/F medium transports to the CH-46E conversion with more powerful engines. The Naval Air Systems Command, Navy and Marine Corps Headquarters staffs have continued to assess the H-60 and practical derivatives which might be developed; this is being done to accurately determine capabilities of potential variants which continue to be proposed as "solutions" to the Marine assault medium lift need. With minimal marinization of the UH-60A, utilizing components from the SH-60 P IAMPS Mark III aircraft, a "CH-60E" aircraft, flown on a Marine Corps amphibious assault mission profile, could carry 11 troops in crashworthy seats (with two cabin gunner stations) or approximately 5,200 pounds of external cargo, at a 0.93 deck spot factor. Comparing this to JVX, carrying 24 troops or 10,000 pounds at 250+ knots at a 1.2 spot factor, it is apparent that the H-60 is a substantially less capable platform than the JVX will be. To grow an H-60 variant to carry a 7,300-8,300 pound external payload, such as a High Mobility Multipurpose Vehicle (HMMWV), is estimated to require a 30+% increase in current UH-60A maximum gross takeoff weight with uncertain technical risk due to increased load factors on the basic structure. In summary, a marinized Blackhawk or derivative continues to fall short of the original V/HXM needs for payload, sizing and speed.

ADEQUACY TO MAINTAIN FORCE STRUCTURE

QUESTION: There have been reports that the Navy, in recent years, has not been procuring sufficient assets to maintain the projected force structure. Will the current budget request and the Five Year Defense Program (FYDP) support the planned fourteen carrier air wings?

ANSWER: The current budget request and the FYDP procurement profile are sufficient to support the planned fourteen carrier air wings through a combination of new procurement and updating existing assets. The average age of the force, however, will continue to increase as the procurement of approximately 330 new aircraft each year is needed to maintain the average age of the force at the desired level. The FYDP is structured to start reversing the trend. Delays in programmed aircraft procurement will impact the entire schedule for building and modernizing the fleet.

ASW HELICOPTER

QUESTION: The House Armed Services Committee has denied the 12 LAMPS MK I helicopters requested in fiscal year 1984. Yet, I am told that there are many existing ships in the fleet that have LAMPS MK I capability, but sufficient helicopter assets are not available. How many ships are equipped with the LAMPS MK I capability but lack the helicopters to complete the system?

ANSWER: Force level inventory requirements to support LAMPS MK I capable active and reserve ships are as follows:

	FY-84	FY-86	FY-88	FY-90	FY-92	FY-94
LAMPS MK I Decks	142	141	125	95	90	90
SH-2F Force Level Required (1)	175	173	150	115	107	107
FY-84 FYDP Inventory Available (2)	91	121	127	123	118	114
Excess(+)/Shortfall(-)	-84	-52	-23	+ 8	+11	+ 7

NOTE: (1) Inventory required at 85% surge, including training and pipeline

(2) Projected inventory with FYDP procurement and SLEP, adjusted for attrition.

QUESTION: It will be some time before the LAMPS MK III system is deployed in adequate numbers to assist in performing the ASW mission. What is the Navy's position relative to the need for additional SEASPRITE helicopters?

ANSWER: Early termination of SH-2F procurement will result in insufficient inventory to maintain the LAMPS MK I active deployable force and support LAMPS MK I reserve and mobilization requirements. Additionally, a reduced inventory exacerbates the drawdown of fleet assets during the SH-2F Service Life Extension Program. Procurement of additional helicopters is required to provide a satisfactory level of aircraft available to deploy on the large number of LAMPS MK I frigates with over a decade of useful service life remaining.

F/A-18 RANGE

QUESTION: Your statement refers to the introduction of the F/A-18 as providing much-needed flexibility to perform both fighter and strike missions. Is the Navy satisfied that the range capability of the F/A-18 is adequate to perform both of these missions?

ANSWER: The Navy's position is that the F/A-18 performance (range) is adequate to meet operational requirements as a multi-mission strike fighter. This position was affirmed by the Secretary of Defense in the F/A-18 decision memorandum dated 17 March 1983.

QUESTION: You mention that the F/A-18 is a force multiplier and will offer increased effectiveness. What does it offer that increases the force multiplier effect beyond that of existing assets?

ANSWER: The force multiplier/multi-role capability of the F/A-18 effectively doubles the fighter assets available in an air wing when fleet air defense and air superiority are primary mission requirements. When air superiority is attained, the same F/A-18 can be reconfigured with air-to-ground external stores and employed most effectively in close air support or interdiction strikes in support of Navy/Marine power projection. This flexibility, coupled with increased sortie generation and superior performance of the F/A-18 strike fighter greatly enhances the overall capability of a Navy or Marine air wing.

A-6/F-14 PRODUCTION

QUESTION: Press reports have speculated that a number of naval aircraft production lines may be allowed to gap for a year or so to provide funds for reengineering the A-6 and F-14 fleet. Has the Navy looked at options involving cessation of production?

ANSWER: Yes, the Navy has looked at options involving the cessation of production. Current aircraft inventory and annual aircraft procurement are closely examined in each budget cycle to present a balanced program which optimizes our capability against the threat. The alternatives regarding the A-6 and F-14 production lines are presently being considered in contractual discussions and therefore no statement is available regarding the production lines at this time.

QUESTION: What is the Navy's position relative to the need to reengine the A-6 and F-14 force?

ANSWER: Both the A-6 and F-14 are being examined across the board - engines, avionics, and radar - to decide what is required for an improved version that will be capable through the years 2000-2005.

In the case of the F-14, it is already clear that future production F-14's should have a new engine to improve their operability in areas such as time-on-station, acceleration to meet attackers, throttle manipulations, etc. The Navy is monitoring the Air Force engine competition and plans to make a selection following its completion. This should permit both the Air Force and the Navy to benefit from savings produced by expanded engine production.

As to the A-6, the new engine requirement for future production A-6's will provide lower maintenance man-hours and ensure safety and operability of the improved and somewhat heavier A-6.

QUESTION: Admiral Schoultz, your statement refers to the F-14 as the "most capable fleet air defense fighter of the free world." If so, why is there continued speculation relative to the need for reengining?

ANSWER: The F-14 is being examined to decide what is required for an improved version that will be capable through the years 2000-2005.

It is clear that future production F-14's should have a new engine to improve their operability in areas such as time-on-station, acceleration to meet attackers, throttle manipulation, etc. The Navy is monitoring the Air Force engine competition and plans to make a selection following its completion. This should permit both the Air Force and the Navy to benefit from savings produced by expanded engine production.

Regarding my statement that the F-14 is the "most capable fleet air defense fighter in the free world," I stand behind that statement today and, with the planned improvements, expect my successors will be able to make that statement ten years or fifteen years from now.

AV-8B HARRIER

QUESTION: General Fitch, your statement mentions that you are about 60 percent complete with the full-scale development program for the AV-8B. Do you continue to believe that this aircraft will be the Marines' answer to close air support of your ground troops?

ANSWER: At this point in its development cycle the AV-8B is progressing satisfactorily toward achieving an on-time Initial Operating Capability in 1985. By every measurement, flying qualities, tactical performance, weapons system accuracy, and reliability and maintainability, the aircraft has shown consistant progress toward realization of its full potential and with the first fleet delivery in October the Marine Corps will possess the world's most responsive and accurate point target airborne weapons system. At completion of the transition to an all V/STOL light attack force the Marine Corps will field a fixed wing force that can deploy and fight anywhere Marine ground troops require support. Reliance on fixed bases will be reduced and the ramifications on planning will be profound. The air-ground team will be coordinated even more closely providing increased combat power for the Marine Corps.

QUESTIONS SUBMITTED BY SENATOR JOHNSTON

F-14

QUESTION: Admiral, I have been told that the F-14 accident rate has been significantly higher this past five years than the older F-4 (which it replaced). Can you provide the rates for both aircraft for the past five years and your comments as to why, if true, this is happening.

ANSWER: The following table depicts the accident rate (mishaps per 100,000 flight hours) for the F-4 and F-14 over the past five years.

(Number of Mishaps/Accident Rate)

	FY-79	FY-80	FY-81	FY-82	FY-83	Cumulative Total
F-4	13/11.53	15/13.62	7/6.80	9/9.26	4/5.72	48/9.386
F-14	10/16.22	7/ 9.39	7/8.37	5/5.59	4/6.83	33/9.280

The accident rate for both aircraft is basically even and it is encouraging to note that they have shown a relatively steady downward trend over the last five years.

F-14/PHOENIX

QUESTION: The F-14 AWG-9/PHOENIX system and operational concept was based on the aircraft's design capability to carry and simultaneously fire six PHOENIX missiles at six separate targets. Is it true that the F-14 landing weight restriction aboard carriers is such that, if it returns without firing the missiles, it must jettison these expensive missiles in the sea and therefore operational commanders will not launch the F-14 with more than two PHOENIX missiles aboard the aircraft?

ANSWER: During normal training operations, the F-14 landing weight limitations restrict carrier arrestments with six AIM-54 missiles. This limitation is designed to prolong airframe service life and avoid wear and tear on the AIM-54 inventory. During combat operations, this restriction will be waived, allowing six AIM-54 missiles to be loaded and permitting the F-14 to land aboard ship if the missiles are not expended.

F-14

QUESTION: Is it true that with the current engines in the F-14, pilots are not allowed either to select or deselect afterburner when they are engaged in air combat at speeds below 250 knots or at high angles of attack? Is this a restriction in either the F-4 or F/A-18?

ANSWER: Yes, it is true that F-14 pilots are prohibited from the flexible use of afterburner in the regimes mentioned. These restrictions have been promulgated as a result of the susceptibility of the TF-30 to stalls when high angle of attack is combined with any of the following: sideslip, high altitude/low airspeed, throttle settings below 90% RPM, throttle movement, and jet wash ingestion. The F-4 and F/A-18 do not have any throttle restrictions during ACM engagements.

A-6/F-14 PRODUCTION

QUESTION: Recently I have read news reports that indicate that the Navy made a decision not to close down the F-14 and A-6 production lines, but in fact will launch on a major program of development to update these older aircraft. Would you please brief us on the planned expenditures in these programs, exactly what is involved, and how the decision was arrived at, including what other options were examined and discarded?

ANSWER: The options regarding A-6 and F-14 production lines are presently being considered in contractual discussions. Therefore, no statement is available regarding these production lines at this time. There is a plan to improve both of these aircraft in order that they will remain capable of meeting the Navy's requirements through the year 2000-2005. Numerous improvements are being examined to determine benefits versus threat versus cost. Ultimately, a collective package of improvements will be established and a cost estimate determined.

Any replacement aircraft start this year would not be available until the mid-90's. Additionally, minor improvements to the A-6 and F-14 aircraft would be required to meet the threat over the next ten years. However, the threat could be met for about twenty years with significantly improved versions of the existing aircraft. Cost estimates for the development of a replacement aircraft, for example VFMX, were more than double those for the improved versions. Additionally, present day, low risk technology does not appear to provide any comparable doubling of capability. Therefore, development of new aircraft for the A-6 and F-14 missions has been deferred. The technologies will continue to be examined and if, at some future date, significant capabilities can be produced and the threat confronting us requires this improved capability, the affordability issue will be reexamined.

DEPARTMENT OF THE AIR FORCE

STATEMENT OF LT. GEN. LAWRENCE A. SKANTZE, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT, AND ACQUISITION, HEADQUARTERS, U.S. AIR FORCE,

ACCOMPANIED BY:

MAJ. GEN. ALFRED G. HANSEN, DIRECTOR OF LOGISTICS PLANS AND PROGRAMS, DEPUTY CHIEF OF STAFF, LOGISTICS AND ENGINEERING

BRIG. GEN. ROBERT F. DURKIN, DEPUTY FOR STRATEGIC FORCES, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT, AND ACQUISITION

COL. DAVID B. ENGLUND, DEPUTY DIRECTOR OF DEVELOPMENT AND PRODUCTION, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT, AND ACQUISITION

COL. JEFFREY D. KAHLA, DEPUTY CHIEF, INVESTMENT APPROPRIATIONS DIVISION, DIRECTORATE OF BUDGET

PREPARED STATEMENT

Senator STEVENS. General, we reversed the procedure the other day. Your colleagues from the Navy waited for you, and this time we thought it was only fair to go the other way.

I would like to suggest that rather than go into the whole question of the F-18 and its impact on the Air Force program, which would be redundant with what you just heard, we asked the Navy, we will submit those questions to you for the record so that you can respond to them, and unless Senator Rudman and Senator Weicker want to go into that specifically, we want to deal with—I am referring to the question of the GAO comments about overproduction, excessive requests for numbers of new aircraft.

General SKANTZE. I have a statement for the record, not specifically on the GAO report, though, which I would like to submit with your permission.

Senator STEVENS. We will put it in the record.

[The prepared statement of General Skantze follows:]

PREPARED STATEMENT OF LT. GEN. LAWRENCE A. SKANTZE

DEPUTY CHIEF OF STAFF, RD&A

HEADQUARTERS, U. S. AIR FORCE

Mr. Chairman and Members of the Committee:

It is a pleasure to present the Air Force Aircraft Procurement budget request for Fiscal Year 1984.

I welcome the opportunity to work with the Congress to strengthen our national defense. During the past year, the Soviets have continued to increase and modernize their conventional and nuclear forces. This steadfast growth in military capability threatens our national security and worldwide interests and challenges the peace and freedom we and our allies enjoy. In order to preserve our security and protect our interests, we must work together to balance the needs of defense with our other national requirements.

I have personally reviewed the programs contained in this budget request. Both in the short and in the long term, these programs represent a balanced and affordable approach to counter the ever-growing Soviet military buildup. I firmly believe that the American people and the Congress see the need to modernize and improve our forces and present to the Soviets a capable and credible deterrent. This deterrent is necessary if we are to protect our national welfare and improve international stability.

Over the past two decades, the Soviets and their allies have amassed a significant nuclear and conventional force capability, large enough to directly threaten our survival as a nation. This quantitative and qualitative buildup of forces is directed by the Soviet leadership who has made military superiority the Soviets' number one national priority, to the detriment of the health and welfare of their citizens. The Soviets have demonstrated that when they have the military advantage and the risk is not too great, they will resort to the threat or actual use of force to achieve political objectives.

This Soviet military buildup has caused a worrisome perception of reduced US power in today's world. Historically, our qualitative superiority has been our advantage. Now, that qualitative gap is closing rapidly. We cannot let the Soviets, our allies or any other nation perceive us as weak or indecisive. We must sustain the commitment we made last year to a stronger defense and maintain the national resolve to counter the Soviet challenge.

We are moving in the right direction to rebuild our war fighting capability. Our Air Force budget priorities remain consistent: Our PEOPLE are the key to improving our combat capability; we depend on their high quality, professionalism and dedication to give us the combat edge. We will continue with the President's plan to MODERNIZE OUR STRATEGIC FORCES which had a strong start last year with continued Congressional efforts. We have made substantial progress in the last two years toward correcting the shortfalls in operations, maintenance and spare parts and improving the READINESS AND SUSTAINABILITY of our combat forces. We have continued our initiatives to EXPAND OUR AIRLIFT CAPABILITY by upgrading existing C-141 and C-5 aircraft, procuring KC-10 and C-5B aircraft, pursuing our Civil Reserve Air Fleet (CRAF) enhancement program, and developing the C-17. OUR TACTICAL FORCE MODERNIZATION efforts will continue to emphasize stable production rates for the F-15 and F-16, while making evolutionary improvements to our air-to-surface, night and all-weather combat capabilities.

In procurement, we have balanced the important production of aircraft and missile systems with continued emphasis on spares, repair parts and other logistics requirements to improve our operational readiness and sustainability. Our modernization program is based on having capable and affordable forces equipped to adapt to an array of threat environments and political situations.

In aircraft procurement, the B-1B aircraft is a top priority of the President's strategic modernization program. The B-1B is about 80 percent common with the original B-1 in terms of basic airframe and engine design. It will incorporate state-of-the-art improvements that will make it highly survivable against existing and projected threats.

Because the B-1B will be capable of performing the missions of a conventional bomber, a cruise missile launch platform and a nuclear weapons delivery system in strategic and tactical roles, it is an essential element of the President's Strategic Modernization Program.

In accordance with the Congressional mandate contained in the FY 1982 DOD Appropriations Act, the President certified both the $20.5 billion (expressed in constant 1981 dollars) cost estimate, and the B-1B initial operational capability in 1986 are sound and achievable, providing the Congress approves the funding on the schedule advanced by the administration. Included in the cost estimate is a projected savings of $800 million (expressed in constant 1981 dollars) to be realized through the use of multiyear procurement (MYP) procedures.

To achieve maximum MYP savings, expanded advanced procurement of economic order quantity (EOQ) purchases of raw materials, parts, and components is planned in FY 1983. These EOQ purchases will be made with funds already appropriated for the B-1B program in FY 1983, although $185M needs to be reprogrammed into the advance procurement account. This action is currently under Congressional review in the FY 1983 Supplemental Budget Request. Purchase of EOQ items is an essential first step in protecting the maximum savings available through the use of MYP contracting. The EOQ purchases in FY 1983 are associated and planned to be followed by MYP contracts in subsequent years.

Approval of B-1B MYP allows the Government to aggressively pursue and realize the largest savings ever attained using this contracting method. Further, approval of the MYP request does not commit the Congress to procurement of B-1B aircraft beyond FY 1984, nor does it create any unfunded liabilities to the Government.

Until the B-1B is available, the B-52 will remain the mainstay of the bomber leg. As these aircraft transition to the cruise missile carrier role, we expect them to remain effective well into the 1990s. These continuing capabilities will require modifications and updates to counter the expected threat, maintain aircraft effectiveness and reliability, and keep the aircraft supportable.

Tanker aircraft are a vital part of our bomber and conventional forces. Our major effort is to modernize the KC-135A by replacing the current engines with CFM56 modern technology engines and upgrading 34 subsystems. We are continuing the wing reskin structural modifications to extend the C-135 service life in line with force structure planning.

Reengining with the CFM56 is the most cost-effective means of alleviating a serious and growing tanker shortfall. A reengined KC-135, designated the KC-135R, is on the average as capable as one and one-half KC-135As and will have a useful life well into the next century. Aside from helping to reduce increasing tanker shortfalls, the KC-135R will also correct specific KC-135A operational and environmental deficiencies. With its performance improvements, the KC-135R will off-load more fuel and provide increased operational flexibility by eliminating our current dependence on extremely long runways.

The Department of Defense is proposing to reengine and modernize 334

KC-135A aircraft. Twenty-nine aircraft will be reengined through FY 1983 and the remaining 305 aircraft will be reengined under a five year MYP beginning in FY 1984. The proposed KC-135R MYP for FY 1984-1988 is projected to save $329.3M in then year dollars over this five year period.

To meet the Soviet conventional threat, we have constructed a modernization plan for maintaining our qualitative edge. In the near term, we will develop evolutionary improvements to our existing fighters while continuing balanced procurement of the F-16 and F-15.

The F-16 is a single engine, lightweight, high performance, multimission fighter capable of performing a broad spectrum of tactical air warfare tasks, including air-to-air and air-to-surface weapons delivery. It is designed for high sortie rates with rapid turnaround, and minimum logistics support.

The MYP contract for the F-16 provides an excellent example of the major savings that can be achieved through more efficient purchase of materials. The prime contractor negotiated a quantity rate adjustment formula with each of their subsystem and material suppliers which results in subcontractor/ supplier prices 5-7% less than what could have been achieved if only annual quantities had been ordered.

The F-15 is a high performance, extended endurance, highly maneuverable fighter equipped with a long range look-down radar and a balanced mix of air-to-air weapons to provide an outstanding close-in infrared and medium range all-weather kill capability. The F-15 is today, and in the foreseeable future, the premier air superiority fighter in our inventory.

The Department of Defense proposes to acquire 48 F-15 aircraft as part of a four year, 312 aircraft multiyear contract for the airframe starting in FY 1984. The FY 1984 quantity would begin raising the production back to economical levels facilitating the acquisition of F-15s required to satisfy balanced force structure objectives. Multiyear procurement savings over the four year period starting in FY 1984 amount to $399 million in then year dollars.

We are evaluating and conducting a flight demonstration of the F-15 and F-16XL aircraft to investigate several potential capability improvements which could be achieved through design and/or avionics modifications to one or both aircraft to fulfill the requirement for the long-range interdiction missions. Our intent is to develop a dual role fighter to supplement the F-111, while maintaining the inherent air-to-air capability of the F-15 and F-16. The results of this flight demonstration will be presented to the Congress during 1983.

Airlift is the most visible, responsive, and flexible element of our mobility resources. Its primary role is to project and sustain combat forces in a crisis or battle area until other means of transportation can deliver the required follow-on support. The existing airlift force continues to have serious inadequacies in its capabilities to meet the mobility requirements of our conventional war strategy.

For the near term, we are procuring additional KC-10s and the C-5B to provide substantial improvement to the U.S. defense mobility posture. The airrefuelable C-5 has an intercontinental range and can carry all the major firepower and equipment items of our modernized ground forces. It is the only aircraft presently capable of transporting key outsize firepower equipment needed by the Army and Marine Corps to respond to worldwide contingencies.

The KC-10As will greatly improve the Air Force capability to support contingency operations, reduce our dependence on foreign bases, and enhance our capability for the rapid deployment of combat forces. The KC-10A will make more KC-135 tankers available to support the strategic bomber force. KC-10A aircraft are being procured using a multiyear procurement contract which provides substantially lower prices than those on comparable commerical sales.

For the long term, the C-17 is a key element in the Air Force's program to redress our airlift shortfalls, especially in the areas of outsize firepower/equipment and intra-theater airlift.

Other key mobility programs include the CT-39 Replacement, the European Distribution System Aircraft (EDSA), Combat Helicopter Modernization, Joint Service Vertical Lift Aircraft Development Program (JVX), and C-140 replacement.

I have only mentioned a few of our significant programs to give you an insight into the type of equipment the Air Force vitally needs.

Overall, we have taken some important new initiatives to strengthen our program management, improve our production efficiency and restore our industrial base. We are controlling costs better and making more effective use of available resources. We are also continuing our cooperation with the North Atlantic Treaty Organization (NATO) and other allies to collectively maximize the return on our investment for defense.

In summary, we have made a good start, toward meeting the Soviet challenge and restoring America's credibility. We must continue with our modernization efforts in FY 1984 to achieve success.

DUAL ROLE FIGHTER

Senator STEVENS. Unless there is something you particularly want to mention, we would like to get the answers to the questions that came out of your previous responses that were submitted to the Department. I will take just a few minutes and go to questions about the dual role fighter.

You are seeking $21.4 million in advance procurement and $104.7 million in R&D for the dual-role fighter for air-to-air and air-to-ground. That dual-role fighter will be a derivative of either the 15 or the 16. I might say that some of us on the committee went out there and looked at the prototypes of what are being tested out there, but the budget justifications do not indicate how much this 400 aircraft program will cost. Do you have the cost estimates based on either derivative now?

General SKANTZE. Well, let me start from the beginning, Mr. Chairman. If we buy, say, 400 dual-role fighters, let us say we do select one that we propose to buy. They will come out of the existing F-15 and F-16 lines. They are not additive. Whichever one we pick, it would come out of that. What we have in that budget line is the delta dollars to an F-15 procurement line, or to an F-16 procurement line, that it would take to buy those 400 dual fighters.

Senator STEVENS. Why then do you need the additional $21.4 million requested for advance procurement if it is coming out of an existing line?

General SKANTZE. These are the delta dollars over the cost of an F-15C or an F-16C. The dual-role fighter will be more expensive than the C versions of either an F-15 or an F-16. So the $21.4 million is really the advance procurement dollars, the delta dollars to initiate the buy of one of those dual-role fighters at the time we make the selection and request permission to go ahead.

CUT IN F-15 PROGRAM

Senator STEVENS. I understand that the Armed Services Committees have cut the F-15 program, and your multi-year program was denied. The indication to this committee says that the Authorization Committees believe that the F-15 program is already too expensive. Yet as I understand it, the derivative fighter procurement based on the F-15 line would be even more expensive. Is that right?

General SKANTZE. Well, let me tell you how we are proceeding, Mr. Chairman. We have issued the request for proposals. We are hoping to get the technical and then the cost data from both of the candidate contractors. We will evaluate that cost data this fall, and look at the performance of either airplane on a comparative basis. Some of that performance work has been done already, and incidentally, very shortly there will be a briefing on the interim performance report that will be brought over to the staffs, but in the fall, we will look at the costs.

You are correct that the base for the F-15 buy is quite low. We have been attempting to get it up to something reasonable, like 48 aircraft that we asked for in 1984. Those numbers were reduced in both of the Authorization Committees. So when the dual-role fighter is proposed, as far as production base goes, they will be posed against a program of 72 airplanes a year, but there will be similarities, obviously.

Senator STEVENS. What happens to your program if you do not get an increase in the line? You cannot turn out both the fighters and the dual-role fighters.

General SKANTZE. No, we would not intend to build two types of dual-role fighters. There is only one of them. What we have to do is to take all of the proposal data, which includes logistics, life cycle support, reliability and maintainability, take all of the data from the flying comparative evaluations that have been conducted, which is on the order of about 400 hours per airplane, look at them from the mission effectiveness analysis as to how they perform, and then that will have to be weighed against the cost of either candidate, and the decision will be made on that total basis, as to which one looks the most attractive from a mission and cost effectiveness point of view.

CONTINUATION OF BOTH LINES

Senator STEVENS. Let me see if I understand this now. I was under the impression that you would continue both the F-15 and F-16 lines.

General SKANTZE. Yes, sir.

Senator STEVENS. In any event.

General SKANTZE. Yes, sir.

Senator STEVENS. That you were going to turn one line into the dual-role fighter.

General SKANTZE. For a certain number, a national number of 400 airplanes.

Senator STEVENS. But you would still want to produce from that line an F-15 or F-16 in the original configuration?

General SKANTZE. A C version. That is an optional version we will have to look at when we consider the whole aspect of the dual-role source selection.

Senator STEVENS. When will that decision be made?

General SKANTZE. It is due to be completed through the Air Force in about December. We are also scheduled to have a review with the DSARC principals in OSD at just about the same time-frame.

Senator STEVENS. Why do you need the advance procurement now when your IOC has already slipped?

General SKANTZE. We had always planned to go on and initiate the production money on contract in January of 1984. If we are successful in doing that, it will not be a slip.

Senator STEVENS. What is there, a 2-year leadtime in advance procurement?

General SKANTZE. I believe it is a 2-year leadtime on the F-16 and 1 year on the F-15.

F-16 ADD-ON

Senator STEVENS. All right. I will turn to my colleagues here to see if they have any questions, but I want to ask one more question about the F-16 add-on. The House and Senate Authorization Committees have added 24 additional F-16's in the 1984 authorization bill. It would appear to us that the cost of those 24 should be about $12 million each, or about $90 million less than was authorized.

I would like to ask two questions. Do you actually require 24 additional F-16's in 1984, in view of this decision that has not yet been made as far as the dual-role fighter is concerned? And in view of the budget restraints, why should we have an unbudgeted increase in F-16's at this time?

General SKANTZE. We have for some time, Mr. Chairman, been embarked on a course of action to build to 40 fighter wings by fiscal year 1988. We are at about 36 now. The dual-role fighters, if we purchase those 400, would replace aging F-4's, some of which are 16 years old or more. So they would not be an increase in the fighter force structure.

In order to get to the 40 wings, we have to buy larger numbers of fighters than we are buying in this fiscal year. We are addressing 1985 to ramp up the numbers of 15's and 16's to a point where we can get 240 to 270 fighters a year, and meet that 40 wing objective.

So the point is, the additional F-16's will certainly help us to get to that objective, although we regret that the number of F-15's were cut in the authorization process.

Senator RUDMAN. Mr. Chairman, Senator Weicker evidently has another meeting to go to. I would be happy to yield to him. He has some questions on another item.

Senator STEVENS. I would be happy to yield to him, too, at this time.

AMOUNT BUDGETED FOR ENGINE COMPETITON

Senator WEICKER. Thank you very much, Mr. Chairman.

General Skantze, the Air Force anticipates that $1.15 billion will be available to be budgeted for competition through fiscal year 1989. Is that true?

General SKANTZE. Which competition, Senator?

Senator WEICKER. We are talking about the engine competition.

General SKANTZE. Yes.

Senator WEICKER. $1.15 billion?

General SKANTZE. Yes, we have budgeted for that.

SAVINGS DUE TO COMPETITION

Senator WEICKER. In arriving at that budget estimate, the Air Force assumes that there will be substantial savings in engine-unit production costs due to competition. How much of a savings is anticipated?

General SKANTZE. We have examined it on a life cycle cost basis. On the front end, we are obviously going to have to spend more money if we—depending on how the engine competition decision is made, whether it goes all to one or we split it. There will be some up front money there that will cost us, if we are going to bring another engine on line. But we have examined it from the life cycle cost basis, and we are convinced it will save us a considerable amount of money, maybe as much as $2 billion over a 20-year life cycle cost, because of, one, the guarantees that we get out of the competition in terms of warranted hot section life cycle costs, in terms of guaranteed engine removal rates and guaranteed depot support.

Senator WEICKER. If the predicted savings from competition were not realized, then future Air Force budgets could be seriously underfunded. By how much would they be underfunded in those circumstances? I imagine that would be the $2 billion you are referring to?

General SKANTZE. That is correct. I think if one reads the request for proposal that went out, there are some tough requirements in terms of performance and warranties which I think are unlike anything we have ever been able to obtain before in the fighter engine business. We believe both contractors are going to respond to those, and we will have a very good set of guarantees no matter which way we go.

AMOUNT REQUIRED TO SUPPORT COMPETITION

Senator WEICKER. A total of $60.8 million is requested in the fiscal year 1984 budget to initiate competition. How much would be required in fiscal year 1983 budget to support the competition?

General SKANTZE. Do you have those numbers at hand, Dave?

Colonel ENGLUND. No.

General SKANTZE. May I submit those for the record, Senator?

[The information follows:]

ENGINE COMPETITION/AMOUNT REQUIRED

Since you are referring to production costs rather than R&D, we did budget a substantial amount to allow us to maintain our options and be in a position to realize the substantial life cycle cost savings available from a competitive program. For fiscal year 1985, we budgeted $476.7 million. This would fund the start-up costs and higher recurring unit cost associated with the improved engines.

Senator WEICKER. What I have indicated to me is roughly in the area of $500 million. Does that strike any bells?

General SKANTZE. That is procurement money. That is not development money. But, yes, I did say there were up-front costs. We have budgeted that much, should we pick both the F110 engine and the improved F100.

PRODUCTION UNIT COST OF ENGINE

Senator WEICKER. Assuming the 15-percent savings from competition, the Air Force estimates in fiscal year 1982 dollars that the production unit cost of the General Electric F110 engine is $3 million, that is $600,000 more than the unit cost for the Pratt-Whitney F100/220 engine. Is that correct?

General SKANTZE. I cannot attest to the accuracy of the figures but it is true that the F110's on the front end are going to cost more than the Pratt-Whitney F100 engines. There is no question about that.

Senator WEICKER. Is it correct to say that with or without savings from competition, the estimated unit production cost of the F110 engine is about 25 percent higher than the unit production cost of the F100/220?

General SKANTZE. That might be quite correct. It will be more. I think it is important to understand that we are getting ourselves in a competitive posture where we are now going to guarantee supportability and maintainability that we have never had before. I think that is the cost. I am not making a judgment on which engine we select, but that is the cost of budgeting the front end in order to get savings in the life cycle.

Senator WEICKER. What would be the estimated unit production cost in fiscal year 1982 dollars of the F100/220 engine under a multiyear contract proposal?

General SKANTZE. I would like to submit that for the record, if I could.

[The material follows:]

F100-220 UNIT PRODUCTION COST

Since this is one of the major options being evaluated by the Air Force as part of our source selection, it is not appropriate to identify specific estimates at this time. Both multiyear and annual buy procurement options will be fully assessed as part of this evaluation.

SPLIT ENGINE BUYS

Senator WEICKER. A decision to split future engine buys between Pratt-Whitney and General Electric as compared to buying only F100/220 engines from Pratt-Whitney would increase future Air Force procurement budgets. What would be the added procurement costs of proceeding with split engine buys in the future?

General SKANTZE. I would like to submit that for the record. When we did the life cycle costs, we took the split engine buy as the high-priced case. It still came out that we would save money on life cycle, but I will submit an answer for the record.

[The material follows:]

SPLIT INCREASE FUTURE BUDGETS

As a budgeting tool, we allocated funds to both the F-15 and F-16 to recognize the higher acquisition cost that may be necessary with either new engine to achieve over twice today's durability. In order to maintain possible competitive outcomes, we have budgeted an additional $1 billion for fiscal year 1985 through fiscal year 1988. Only by careful assessment of the contractor proposals will we be in a position to make the best choice for the Air Force. Even counting this very substantial investment, we project a $2 billion savings on a 20 year life cycle cost basis.

F-16 PERFORMANCE WITH EITHER ENGINE

Senator WEICKER. Although there are some differences in the various portions of the aircraft flight regime, would it be accurate to say that the overall performance of the F-16 aircraft would be roughly the same with either the General Electric or the Pratt-Whitney?

General SKANTZE. I think that is a fair statement.

Senator WEICKER. And if the overall performance of the F-16 is almost identical with either engine, if the F-110 engine is more costly to produce than the F-100/220, would the Air Force still proceed with competitive engine buys in the future?

General SKANTZE. I pointed out, Senator, that we are doing it on the basis of the life cycle costs and the guarantees that we are going to get from the competition, and may the best engine win.

Senator WEICKER. One last question, and then I will submit the rest for the record. The Air Force maintains that the lower support costs of the F-110 engine would more than offset its higher production costs. The F-110 engine is predicted to have a lower cost per flight hour, $310 versus $435 for the F-100/200, a difference of $125 per hour. Is that correct?

General SKANTZE. I would have to verify the numbers, but I think generally that is correct.

[The information follows:]

LOWER COST PER FLIGHT HOUR

Since we are in a source selection, I would prefer to simply say that we do project lower support costs for the F-110 by roughly the magnitude you suggest. However, evaluation of the detailed contractor proposals and the extent to which both contractors are willing to warrant their product will give us a much better estimate.

PREDICTING SUPPORT COSTS

Senator WEICKER. If the Air Force experiences great difficulty in predicting support costs from year to year for existing engines in aircraft, how could the Air Force predict support costs with such precision for an engine, the F-110 of the future, for which there is no operational experience whatsoever?

General SKANTZE. Well, the core engine, the core part of the F-110 engine, which is the high pressure compressor, the burner section, the high pressure turbine, is common to the B-1 engine, the F-101. It is common to the CFM-56, which has a considerable amount of flying time, and was based on the original 101 engine. It also has a good legacy in the General Electric 404 engine, which is in the F-18 and doing extremely well.

So, there actually is a broader support base for that engine and a broader breadth of experience than is seen at first glance.

Senator WEICKER. Well, the only matter of concern to me of course is that if you predict a $125 per hour savings per flight hour and do not realize it, if say the savings were only $65 per flight hour, how is that going to affect your overall economic analysis which was so keyed with the final decision?

General SKANTZE. Well, the point is, the contractors are required to guarantee engine removal rates, guarantee the number of dollars in material per year you have got to buy to support those engines, guarantee 3,000 tactical cycles cycling the throttle on the hot section, and they are coming on line to guarantee to do that, and they will have to live up to those warranties.

Senator WEICKER. I have further questions that I will submit for the record.

F-15 AND 16 CONVERSION AND ACQUISITION COSTS

Senator STEVENS. Senator Rudman.

Senator RUDMAN. Mr. Chairman, thank you.

I really just have one question for General Skantze. It well may be that this question ought to be directed to someone else, but let me just try it out on you, General Skantze.

The deep interdiction capability for which we are going ahead with the F-15 and F-16E aircraft has been validated in NATO. There is no question that that has been validated, and I have some figures that indicate that the total conversion and acquisition costs would be about $4 billion by 1990. Now, if you had a different understanding, I would like that to be included in the record.

General SKANTZE. Yes. As I say, the PE which covers the dual role fighter has been budgeted on the basis of the delta costs which would be additive to the 400 air frames that we take out of either the F-15 or the F-16, but you are looking for a total number.

Senator RUDMAN. Yes, I would like that for the record.

[The information follows.]

CONVERSION AND AQUISITION COSTS

The following estimates for the development and procurement of 400 Dual Role Fighters are based on an August 1982 AFSC independent cost analysis of the proposed F-15E and F-16E programs and reflect the configurations, production quantities and procurement rates projected at that time.

The final cost for different configurations or quantities could result in higher or lower costs. Firm cost quotes have been requested from both contractors and will be used to determine "most probable cost" estimates.

TY dollars	F-15	F-16
Delta acquisition cost:		
RDT&E (million)	$275	$473
Procurement (million)	870	2,492
Delta cost subtotal (million)	1,145	2,965
Total acquisition cost (400 a/c) (billion)	15.2	11.4

ALTERNATES FOR DEEP INTERDICTION MISSIONS

Senator RUDMAN. Now I will tell you why I asked the question. Curiously the Pershing II on the ground-launched cruise missile, if

deployed on schedule this year and next year in the NATO countries, could largely assume all of the missions for deep interdiction of the F-15 and the F-16; and curiously, the date for which they would come on line fully deployed is very similar to the date of the F-15 and F-16E.

That being the case, looking at the FB-111's proven low penetration ability and deep interdiction ability and so forth, with the incorporation of the PAVE CAC system, which I have had a chance to personally look at, and which the Air Force has done a first-rate job on, I wonder, in light of the fact that we are really fighting to find alternatives—I do not know if you were here during Admiral Schoultz's testimony, but it is the same kind of question I have been asking him. Since we have got the Pershings and the ground-launched cruise missiles which will do a deep interdiction mission perfectly if they work as they are supposed to, and we are told by DOD they work as they are supposed to, high accuracy, short travel time, obviously no risk to personnel, at least on board—maybe at the launching site. Why do we not take a strong look at whether or not we really ought to do F-15E and F-16E? If we need some aircraft for deep interdiction, why not go ahead with some FB-111 conversions, which I understand would be enormously less expensive, unless we are now going to take the position we need not a triad, but at least two-thirds of it for our intermediate course missiles as well as our strategic triad. I wonder if you might respond to that.

General SKANTZE. Let me put it this way. The requirement, as we see it for the duel role fighter, is overwhelmingly to do a conventional mission. It stems from the fact that the F-111's we have are overtaxed in terms of their dual role. The F-111's we do have are really primarily most effective against fixed targets. We see more and more need to go against armor. We see more and more need to be able to fight at night and prevent anyone having the sanctuary of being able to move his armor at night, which they practice very much.

The F-4's are aging, and of themselves, do not have sufficient range to get to some of the second echelon points where we think we have to get at some of these mobile arms. We also recognize that we will not necessarily fight in the central region of Europe, and more likely we will fight somewhere else in Southwest Asia. We have learned that the ranges involved there are pretty extensive, and that the F-4's and the F-16's and the air-to-ground role do not have enough legs to get deep into places where we need to get to blunt armor and troops coming into the arena.

So, it is a combination of those things plus recognizing that the F-4's are getting older and we have to retire them to keep a reasonable aged force. So, it was for all those reasons, and what it really is, it is a review of the fighter force structure, not to grow more fighter wings, but to adjust them so that in the timeframe we have the right balance and capability.

SALES PITCH TO CONGRESS

Senator RUDMAN. I accept that answer as being logical and persuasive. Am I incorrect in stating that the driving sales pitch, the

driving central issue for the F-15E and the F-16E were not those factors you just mentioned, which are valid, but in fact it was sold to the Congress on the basis of fulfillment of the validated NATO deep interdiction mission? Am I incorrect about that?

General SKANTZE. That is not my perception.

Colonel ENGLUND. The theater mission was served in the dual role fighter.

Senator RUDMAN. Well, it seems that my memory is usually reasonably accurate about these things, at least, and my recollection is that over the last few years we have been very heavily sold on its deep interdiction needs in central Europe. If you are now saying that in terms of other strategic tactical requirements, the F-15's and F-16's are needed, I would be willing to convince you that if you look back at the testimony of your predecessors, you would not find too much of that in the record. I am going to go back and look at the record, but I do not believe that is so.

General SKANTZE. I did not mean to say that there was no deep interdiction requirement in Europe. I am saying that it is likely that there are other places——

Senator RUDMAN. I understood your answer very well.

General SKANTZE. I do not recall—there has never been a primary nuclear thrust as far as nuclear delivery. If that is what you are saying, then I really do not have that perception.

Senator RUDMAN. Thank you, Mr. Chairman.

General SKANTZE. But I might offer—there is a fighter roadmap briefing which we could have someone come over from the requirement shop——

STATEMENT OF PRIORITIES

Senator RUDMAN. I would like that, because I will state what the chairman has stated, that we are trying to find options to maintain force structure if we can, the readiness if we can. I think we have done reasonably well with O&M. Looking at the procurement side of this whole appropriation, servicewide, we are going to have to make some hard choices or else we are going to have an awful lot of shiny new equipment sitting on the ramps with nobody to fly them. No gasoline to fuel them. No spare parts to run them. That is a real concern out 5 or 6 years when you look at the pyramiding of these procurement costs along with what it means to O&M along the way and readiness. It is a real problem. General Skantze?

General SKANTZE. Let me assure you, Senator, that from our point of view in the Air Force, we have a set of priorities, the first of which is strategic modernization, principally the B-1B and the Peacekeeper, the second of which is readiness, and supportability. That is spares, flying hours, munitions. We are committed to put capable units on the ramp which are capable of doing their job.

Senator RUDMAN. Those are the same priorities we have in the subcommittee.

General SKANTZE. Let me say the day we cannot do that we are going to cut something, because at least from a readiness point of view, we are required to maintain that.

Senator RUDMAN. Thank you very much, Mr. Chairman.

ISSUE OF THRUST

Senator STEVENS. I am concerned about the competition. The Secretary has notified me that the $30 million add-on to increase the thrust of the F-100 engine will be spent if we agree that there would be no further funding for any development effort as far as the F-100 is concerned, and yet everyone I talk to particularly concerning the dual role fighter is talking about a thrust.

The test pilots, the fighter pilots, the people that are really looking into this competition as far as the dual role fighter, they were really—I do not think they were at all concerned about the competition between the F-100 and the F-110, but—I mean, between the F-100 and the F-110 engine. They were just talking about what it took to make the dual role fighter produce, and they were talking primarily thrust, yet when we look at this competition, the Air Force continues to maintain that thrust is not one of the criteria as far as competition is concerned.

Now, is that still the case, particularly in view of the increasing Soviet threat that has already been mentioned in terms of the aircraft that they are putting out now?

General SKANTZE. Well, let me answer that two ways. We still believe that the dual role fighter mission can be met with satisfactory performance with either the F-100 or the F-110. As I mentioned earlier, we now have an interim view of the flight test data, and we are planning to bring that over to the staff in the next week or two, and that will be one of the points that will be described by the actual people who flew the airplanes.

Now, with respect to the generic idea of upgrading thrusts on either engine, as you are well aware, I think there is $12 million appropriated in 1983 or 1982 which we did negotiate with the Pratt-Whitney engine improvement program, and we did initiate an upgraded thrust program. The $30 million that was appropriated in 1983, I think, as you pointed out correctly, is currently down in OSD for consideration. So, from their point of view, from my point of view, I would look forward to having an off-line and upgraded program for us, because I think eventually we will need it.

Senator STEVENS. Well, you have it in the F-110.

General SKANTZE. We also have some added weight in the F-110.

WINNER TAKE ALL CONCEPT

Senator STEVENS. Secretary Lehman has said he is going to abide by the Air Force decision as far as the competition is concerned, that the Navy will buy the engine that the Air Force buys. That is sole source procurement again, is it not?

General SKANTZE. Well, that is the Secretary's decision. If he chooses to buy the same engine we buy, you know, that is his decision to articulate to Secretary Weinberger and the Congress, but they are on board with us in following the competition.

Senator STEVENS. It just seems that there is a winner take all concept as far as the engine competition is concerned, and it is something that has to be really considered.

General SKANTZE. Well, as you know, Mr. Chairman, we have the option in the selection to go winner take all or make a split, do it for 1 year or do it for several years.

Senator STEVENS. Well, we are going to have to talk to the Navy. The problem is, if you accept the concept of the two engines, you increase our costs as far as maintenance and spares and logistics.

General SKANTZE. I think we have done a pretty thorough analysis on that from our point of view. The only way that we could justify the competition is to prove to people, our leadership, the life cycle costs would pay off, and you know, having been in this business a large number of years, I cannot tell you how pleased I am to see that we can have engine contractors who are willing to sign up to significant tough warranties and performance guarantees.

Senator STEVENS. Let me turn to one other subject, and then I have to go. The others have already gone to the meeting that I am supposed to be at.

WIDE-BODY AIRCRAFT

We have appropriated $144.8 million to buy three wide-body cargo aircraft. There are a number of wide-body aircrafts available from the domestic airlines at prices considerably below the $48 million unit cost that you indicated to us for the 1983 buy. We are told that you just initiated a study as to how to utilize the aircraft, but you have not obligated the funds we are about through this year. What are you going to do with the funds that were provided for wide-body aircraft for 1983?

General SKANTZE. I know we have gone into the process of starting to initiate that money. There has been discussion of using one of those aircraft for a shuttle carrier aircraft. The figure for that and then using it as a cargo aircraft except at the times that you need to carry the shuttle—I would like to submit a statement for the record, Mr. Chairman, to clarify that.

Senator STEVENS. Yes, do that.

[The information follows:]

WIDE BODY CARGO AIRCRAFT

The Air Force plans to acquire three wide bodied aircraft (C–19A) for strategic airlift. A request for proposal (RFP) is scheduled for release in September this year. This proposal will include not only the acquisition of aircraft but also initial spares, data and peculiar support equipment to operate these aircraft. Thus, the $144.8 million appropriated is the minimum required to procure supportable aircraft.

In addition to acquiring three aircraft for airlift, NASA and the Air Force are discussing the possibility of modifying one plane as a shuttle carrier backup. If modified as a backup aircraft, it would still be capable to perform the airlift mission. The modified aircraft would only be used should the prime NASA shuttle carrier aircraft be unavailable.

Finally, the Export Import Bank currently holds first trust on five DC–10 aircraft. These planes are Laker Airways DC–10–30 passenger aircraft. The aircraft are for sale in the commercial market at an asking price of $43 million per aircraft.

FUNDING FOR DOMESTIC CARRIERS

Senator STEVENS. Tell us what is available for the Export Import Bank in that memo, in the domestic carriers. We have had a whole series of aircraft that are available. That is what the money was intended to be for. It was the outcome of the debate over the C–5B.

I am speaking of the C–5B, and I have really got to go. The note says I have got to go. I have really got to go. The C–17 program is just being so downgraded that I really cannot understand it. Does it have an Air Force priority or does it not?

General SKANTZE. Mr. Chairman, we have fully funded the development in fiscal 1985. I believe that will remain so. We hope to get the $13 million that was cut in the Senate authorization conference and get that restored. We are going to use the $59 million that was appropriated last year, and I think we have the program laid out to go to full scale development in 1985 and produce the first airplane on the ramp in 1989, which will be like 10 months after we get the last C–5B. But that is the committed Air Force program.

SUBMITTED QUESTIONS

Senator STEVENS. We have a series of other questions that we will submit for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

ALLEDGED AIRCRAFT OVERBUY

QUESTION: We need to talk seriously about GAO contentions that the Air Force and Navy are planning to buy more aircraft than they need to sustain their force goals. Specifically, GAO says the two services have programmed more than 700 too many F-14, F/A-18, F-15 and F-16 fighters by laying on excessive training, maintenance and attrition requirements. This could involve more than $21 billion in unnecessary spending over the total procurement program. We know the military services don't agree, but we would like to know why.

ANSWER: Actual Air Force requirements for training maintenance and attrition aircraft vary slightly from estimates but have not proven to be excessive. Requirements continue to be based on fact of life data on what is required to maintain ready combat forces. That data is the basis for and continues to support our estimates.

LOWER TRAINING REQUIREMENTS

QUESTION: On training requirements, GAO thinks the military requirement ranging from 21 to 25 percent of operational needs is far too high. Why can't you utilize more combat aircraft for training and utilize Saturday training flights to bring down that requirement?

ANSWER: [Deleted.] These aircraft are utilized to support five basic types of tactical fighter training:

A) Transition of recent graduates from Undergraduate Pilot Training.

B) Pilots Transitioning from non-tactical aircraft.

C) Experienced tactical fighter pilots transitioning to newer weapons systems.

D) Requalification of pilots completing non-flying assignments.

E) Advanced training courses designed to progress experienced pilots to instructor or weapons instructor status.

The majority of the training listed above is accomplished at dedicated training centers. This system has proven to be efficient, cost effective and produces a better trained pilot. To support this concept, training coded aircraft are located at the training bases. A reduction of training aircraft at a location would require either a transfer of combat coded aircraft to the training units or a transfer of students to combat squadrons for training. The disadvantage of utilizing combat coded aircraft in training are as follows:

A) Aircraft are not located with their units and would have to redeploy before they could be readied for deployment overseas (i.e., increased reaction time).

B) A/C are not available to satisfy the unit's daily training requirements to maintain combat ready aircrews.

C) To meet a contingency, CC coded aircraft would deploy producing a drastic reduction in training capability when it is needed the most.

The other option available would be to instruct students in the combat squadrons, this option has the following disadvantages:

A) Insufficent instructor pilots available in combat units.

B) Student training would reduce sorties and time available for combat training.

C) Training base would be depleted should the squadron deploy.

D) Training costs would increase due to procurement of redundant training items which are presently centrally located.

Utilization of Saturday training flights has been attempted in the past and was unsuccessful for the following reasons:

A) Demotivating to maintenance personnel who are already working long hours over a six day period to support five flying days and would be required to increase their work week to seven days.

B) Presently, Saturdays are used by maintenance personnel to perform work over an uninterrupted period of time. This program results in higher incommission rates.

C) The same number of sorties over a six day versus a 5 day period would require an increase in personnel as many additional support facilities such as supply, security police, barrier maintenance, crash recovery, tower crews, etc. would require an increase in the number of personnel.

MAINTENANCE REQUIREMENTS

QUESTION: Your maintenance requirements for back-up aircraft are also considered excessive by GAO because they do not reflect improvements in maintainability and reliability of newer aircraft. What's your response?

ANSWER: Experience with operational systems has shown requirements for maintenance back up aircraft are not excessive. Requirements continue to be based on fact of life data which support our requirement for maintenance back-up aircraft. This includes improvements in reliability and maintainability.

ADJUST REQUIREMENT

QUESTION: GAO says both services are overstating peacetime attrition because they do not take into account the lower operational loss rates as these fighter aircraft are upgraded and improved. Why can't you adjust that requirement as well?

ANSWER: Projected attrition loss rates are computed based on the average yearly attrition over the life time of an aircraft. Although the actual loss rates vary from one year to the next, they are generally greater at the outset of the life cycle and decrease as the learning curve goes up.

The factor is arrived at in part by comparing a new aircraft, like the F-16, to aircraft with similarities in technology and mission requirements. The F-4E, F-15, and A-7 are similar to the F-16 but each is also different which compounds the problem. The F-4E (similar mission) is a two engine, two seat aircraft that benefited from extensive experience in the Navy (F-4B/H/J) and the Air Force (F-4C/D). The F-15 is similar in technology but has two engines and performs a different mission (air-to-air only). The A-7 is single seat, single engine, and performs a similar mission but with extensive Navy experience. USAF life cycle attrition factors take this and other factors into account to arrive at a constant yearly projected attrition rate.

Adjusting projected loss rates on a yearly basis would cause total aircraft requirements to fluctuate year by year negatively impacting contractual agreements, production rates, and procurement costs.

. COMPARISON OF PROJECTED/ACTUAL AIRCRAFT LOSSES

QUESTION: Provide for the record a comparison of the projected and actual aircraft losses by type of aircraft for each year beginning in 1978 through 1982 for both the Air Force and the Navy.

ANSWER: See Attached Chart:

PROJECTED/ACTUAL AIRCRAFT LOSSES - USAF

	1978		1979		1980		1981		1982	
	PROJ	ACT	PROJ	ACT	PROJ	ACT	PROJ	ACT	PROJ	ACT
A-007	7	9	6	7	7	4	7	10	6	4
A-010	2	3	3	9	7	4	8	9	10	3
A-037	2	0	0	2						
B-052	2	0	0	1	3	1	1	0	0	3
F-B111	0	1	0	1	1	1	1	2	1	0
C-005	0	0	1	0	1	0	1	0	0	0
C-007	0	0	1	0	0	0	0	0	1	0
C-009	0	0	0	0	0	0	1	0	0	0
C-123	1	1	0	0	0	0	0	1	0	0
C-130	3	3	2	2	1	1	1	3	1	1
C-141	0	0	1	1	0	0	0	1	0	2
CT/T-039	0	0	0	1	0	0	0	0	1	1
KC/EC/RC-135	3	0	0	1	1	2	1	2	1	2
E-003	0	0	0	0	0	0	0	0	1	0
RF/F-004	19	15	18	24	15	14	12	26	15	12
F-005	2	3	1	3	1	1	1	1	2	4
F-015	4	6	6	8	7	5	8	4	10	3
F-016	0	0	2	4	3	5	1	2	6	11
F-100	8	7	3	3	0	0	0	0	0	0
F-101	1	1	1	3	0	1	0	1	1	0
F-105	5	8	6	4	4	5	3	2	1	0
F-106	3	2	2	4	3	4	3	4	2	0
F-111	7	6	8	8	6	7	5	1	5	5
H-001	2	1	0	0	0	1	1	0	1	3
H-003	0	1	0	0	0	1	0	0	1	1
H-053	0	0	0	1	0	1	0	1	0	1
O-002	1	4	3	0	1	2	1	3	0	0
OV-010	1	3	1	1	1	3	2	1	1	3
OA-037							1	0	1	1
T-033	2	1	2	1	2	0	2	5	2	1
T-037	3	4	3	1	2	2	2	3	2	3
T-038	4	7	4	5	5	1	5	7	4	7
T-041	1	1	0	0	0	0	0	2	0	0
T-043	0	0	1	0	0	0	0	0	0	0

COST ESTIMATES FOR F-15/F-16 DERIVATIVE FIGHTER

QUESTION: The Air Force is seeking $21.4 million in advance procurement and $104.7 million in R&D for the so-called Dual Role Fighter for both air-to-air and air-to-ground combat. The Dual Role Fighter will be a derivative of either the F-15 or F-16.

General, the budget justification does not indicate how much this 400 aircraft program will cost. What are the cost estimates for either an F-15 or F-16 derivative fighter? Just what are you asking Congress to sign up for?

ANSWER: The following estimates for the development and procurement of 400 Dual Role Fighters are based on an August 1982 AFSC independent cost analysis of the proposed F-15E and F-16E programs and reflect the configurations, production quantities and procurement rates projected at that time.

The final cost for different configurations or quantities could result in higher or lower costs. Firm cost quotes have been requested from both contractors and will be used to determine "most probable cost" estimates.

(TY $)	F-15	F-16
Delta Acquisition Cost		
RDT&E	$ 275 M	$ 473 M
Procurement	870 M	2492 M
Delta Cost Subtotal	$1145 M	$2965 M
Total Acquisition Cost (400 a/c)	$15.2 B	$11.4 B

FUNDS FOR DUAL ROLE FIGHTER PROGRAM

QUESTION: Why should Congress provide any funds for this program before it knows which aircraft will be selected and what the total acquisition cost will be?

ANSWER: Funding is required to smoothly transition from the comparative demonstration to full scale development, thus maintaining the continuity of the design effort while ensuring the earliest possible operational capability.

Firm cost quotes have been requested from both contractors. These will be used to determine "most probable cost" estimates for use in the Air Force decision process. Prior to contract award in January 1984, briefings will be provided to the appropriate Congressional committees.

FUNDS FOR ADVANCE PROCUREMENT

QUESTION: General Skantze, I understand that the Air Force is now planning to purchase 48 F-15's and 150 F-16's in 1985, and that production of the first derivative fighter has slipped to FY 1986.

Why, then, do you need any of the $21.4 million requested for advance procurement in your FY 1984 budget to support the derivative fighter program?

ANSWER: The Dual Role Fighter (DRF) planning originally called for the initial procurement of two F-15Es in FY 1985 or 16 F-16Es in FY 1986, depending upon the outcome of the decision process. Current planning provides for the FY 1986 procurement of 16 F-15Es or F-16Es.

The $21.4 million request in FY 1984 is procurement funding for nonrecurring tooling should the F-16E be selected as the DRF.

REVISED FY 84 FUNDING REQUIREMENTS

QUESTION: What are your revised FY 1984 funding requirements for the derivative fighter program since it appears to have slipped a year?

ANSWER: The projected Dual Role Fighter (DRF) Full Scale Development program start has slipped four months from Oct 83 to Jan 84. Therefore, the DRF development program can be initiated in FY 84 for $69.8 million without additional schedule delays.

The full $21.4 million procurement funding request is required for non-recurring tooling should the F-16E be selected as the DRF.

FUND REQUIREMENTS BY REPROGRAMMING

QUESTION: Is it possible that you could fund your requirements for advance procurement by a reprogramming, once a selection has been made and funding requirements are firm?

ANSWER: The need for procurement funding in FY 84 is dependent upon the candidate selected. The F-15 DRF candidate does not require FY 84 procurement funding, whereas the F-16 DRF candidate requires $21.4 million for non-recurring tooling. If the F-16 candidate is selected and reprogramming is necessary to fund this requirement, other high priority Air Force programs will be adversely impacted.

F-15 LESS EXPENSIVE

QUESTION: You are programming for the derivative fighter procurement on the basis of incremental, rather than total program acquisition costs. If you look at the program in that way, wouldn't the F-15 appear less expensive since it has less R&D associated with its development?

ANSWER: Funding for the Dual Role Fighter (DRF) has been requested on a delta cost basis which is additive to the funding already requested for the F-15 C/D or F-16 C/D. However, contractor cost proposals for the Dual Role Fighter will provide firm cost quotes on the F-15 and F-16 aircraft in their dual role configuration which will permit evaluation of the candidates on a total cost basis as well as a delta cost basis.

QUESTION OF AFFORDABILITY

QUESTION: Shouldn't you also be looking at the question of affordability? Can you assure the Committee that the aircraft selected for this mission will be the most affordable?

ANSWER: The Air Force is very strongly looking at the affordability of the candidate aircraft. The Air Force will evaluate the candidates in terms of capability, effectiveness, cost, schedule and risk with the objective of getting the most mission-capable aircraft for the most affordable cost. Accordingly, the affordability analysis will address not only acquisition cost, but will include operating and support costs to provide a life cycle cost comparison between the candidates.

NON-SUPPORT OF HEAVY OUTYEAR FIGHTER PRODUCTION GOALS

QUESTION: What happens to your dual role fighter program if congress does not support your heavy outyear fighter production goals?

ANSWER: The requirement for a dual role fighter is based on the need for increased range and payload capability and the ability to operate at night and in marginal weather conditions. The dual role fighter should be a component of our force irrespective of our outyear production goals. Further, the dual role fighter involves modification of aircraft we plan to procure; it is not additional force structure. A decrease in outyear production would not reduce our requirement for a DRF; in fact, decreases in total fighter procurement levels may make it more necessary.

ROUND OF COST ESTIMATES AFFECTED

QUESTION: The last cost estimates provided to the Committee on this program (August 1982), and reviewed by GAO, indicates that the total acquisition cost for 400 F-15E's would be $15.2 billion, while an F-16E program would cost only $11.4 billion. Won't the next round of cost estimates be affected by the Congressional cuts to the baseline F-15 program and the addition of 24 more F-16s above the budget?

ANSWER: The August 1982 cost estimates were based upon the F-15 C/D and F-16 C/D procurement rates requested in the FY84 President's Budget. If these procurement rates are modified by Congressional action, the total acquisition cost estimates would have to be reaccomplished to reflect the directed quantities.

ADDITIONAL CHANGES PROPOSED FOR F-15E

QUESTION: Have additional changes been proposed for the F-15E, such as 9G wing enhancements and automatic terrain following, which will further drive up its incremental cost anyway?

ANSWER: Some additional changes have been proposed for the F-15E, as well as for the F-16E, which will be evaluated in terms of added capability, mission effectiveness and cost. Specifically, the 9G enhancement proposed for the F-15E can be accomplished with minimal structural modification at very low cost.

The automatic terrain-following feature is more costly, but necessary to meet the weapon system's mission of longer range, low altitude, in-weather penetration profiles for interdiction.

WHO WILL MAKE DECISION

QUESTION: Who in the Air Force is going to decide whether we go with an F-15E or an F-16E? Will it be Secretary Orr?

ANSWER: The Chief of Staff, General Gabriel, will make the decision in consultation with Secretary Orr.

FIRM COST QUOTES

QUESTION: When will you have firm cost quotes from both contractors? When will you have side-by-side technical data to provide to the Armed Services and Appropriations Committees?

ANSWER: Contractor cost proposals are due by 17 August. Analysis of the contractors' cost and technical proposals will continue through November 1983 leading to an Air Force decision in January 1984. Briefings will be provided to the appropriate Congressional committees prior to any contract award.

PRIORITIES

QUESTION: Do you consider the Dual Role Fighter to be a higher priority than development of a new advanced tactical fighter?

ANSWER: The Dual Role Fighter is a higher priority than the Advanced Tactical Fighter only in that we need the Dual Role Fighter capabilities sooner, i.e. our air-to-surface requirements in the 1980s and early 90's are more pressing than our air-to-air needs. The enhancements we're making to our F-15 and F-16's will provide satisfactory air-to-air capability through the 80's and early 90's. On the other hand, our air-to-surface force is currently lacking in night, long range and high payload capabilities, and these deficiencies need to be rectified as soon as possible.

F-15 ADVANCE PROCUREMENT

QUESTION: You have budgeted $431.5 million for F-15 advance procurement, $215.9 million of which is for the initiation of multiyear procurement that will not be authorized. Is it also true that the planned 1985 F-15 buy has been reduced from 72 to 48? How does all that affect your advance procurement requirements?

ANSWER: Until such time as the FY 85 procurement quantity has been determined, it is not possible to ascertain the impact on FY 84 advance procurement. However, it is apparent that the expanded advance procurement associated with multiyear contracting will not be needed. This will reduce FY 84 advance procurement requirements from $431.5 million to $215.6.

ADD-ONS

QUESTION: Since these additional aircraft will be add-ons to existing multiyear contract, will you be able to negotiate a unit price less than or equal to the current multi-year unit price for the FY 84 buy or for the FY 84 lot? If not, why not and why should we buy any additional aircraft at a higher price?

ANSWER: The additional F-16 aircraft to be ordered during the multiyear contract period have been priced under a variation-in-quantity provision incorporated in the multiyear contract. The unit price for these aircraft is more than the unit price of the multiyear aircraft since they do not have the economic ordering quantity benefit of the multiyear contract. The add-on aircraft should reflect the benefits of increased business base and be priced similar to F-16 aircraft acquired on an annual basis. To receive the full benefits of a multiyear contract, the total aircraft quantities must be known and initiated at the time of contract award.

FOLLOW-ON F-16 MULTI-YEAR CONTRACT

QUESTION: Your estimated request for FY 85 Advance Procurement Funding for the FY 86 contract shows no up-front funding for a follow-on multi-year contract. Is the Air Force considering such a follow-on or has it decided that such a multi-year contract would not be in the best interest of the government.

ANSWER: The Air Force considers the current F-16 multi-year procurement to be very successful and a highly desirable acquisition strategy. A follow-on multi-year contract was not considered during the formulation of the FY 84 Presidents Budget, and therefore the FY 84 Five Year Defense Plan (FYDP) does not reflect the required upfront funding nor the resulting saving assocated with a follow-on multi-year procurement. A follow-on F-16 multiyear is being considered during the FY 85 President's Budget formulation.

ESTIMATED MULTIYEAR CONTRACT SAVINGS

QUESTION: The pending 1983 supplemental appropriation -- if we can ever finish work on it -- will provide funding authority for the Air Force to make economic order quantity purchases of long lead components for the B-1. Assuming these funds become available in August, where does that leave you with your estimated multiyear contract savings for this aircraft?

ANSWER: Assuming the Air Force initiates contracts in August 1983 to procure expanded advance procurement items, a substantial portion of the maximum savings available appears to remain achievable. The Air Force plans to vigorously pursue these contracts and subsequent multiyear procurement contracts, if approved, to achieve the planned savings of $800 million (expressed in FY 1981 $). Current contractor proposals show this savings to be achievable. However, the August initiation of B-1B expanded advance procurement purchases has increased the risk of attaining these savings.

SUPPLEMENTAL LANGUAGE

QUESTION: Have you been able to examine the supplemental language? Do you agree there is sufficient funds and authority to begin long lead purchases that will preserve the multiyear procurement option?

ANSWER: The Air Force has examined the language in the FY 1983 Supplemental Appropriations Act. We feel confident that this language provides the authority and sufficient funding to the Air Force to initiate the procurement procedures that are the important first step in achieving the savings available through multiyear procurement.

B-1 PRODUCTION AND COST CONTROL

QUESTION: Just how important is it to B-1 production and cost control to have multiyear contracting authority included in the FY 1984 Defense Appropriations Bill for the B-1?

ANSWER: Multiyear procurement (MYP) has been an integral element of the B-1B baseline cost estimate of $20.5 billion (expressed in FY 1981 $) since the inception of this program. This cost estimate was then certified to the Congress by the President. Further, MYP procedures have always been a key element of the overall B-1B contracting strategy. The Air Force feels that the authority to initiate MYP contracts is vital to the cost control and production of the B-1B program.

LATEST PROGRAM ESTIMATES ON B-1 PRODUCTION

QUESTION: Please supply your latest program estimates on B-1 production and costs based on early approval of the supplemental

and on 1984 multiyear contracting. Highlight any change that may occur in the 1984 budget program goals.

ANSWER: The latest production and cost estimates for the B-1B program are that the Air Force will procure 100 aircraft for $20.5 billion (expressed in FY 1981$). The B-1B program remains ahead of schedule and below budgeted costs, indicating our production and cost goals are valid and achievable. There have been no changes nor are any anticipated to the B-1B 1984 program goals.

PROCUREMENT BUDGET LINE

QUESTION: General Skantze, President Reagan has certified that the B-1B program cost will be $20.5 billion in constant dollars. You've testified that a number of related programmatic requirements such as the B-1B simulators and the common strategic rotary launcher are not included in this $20.5 billion. Provide for the record, a schedule by fiscal year in procurement budget line the funding required to make the B-1 an operational system. Identify in this display what specifically these funds will provide for purchase.

ANSWER: The B-1B baseline budget estimate of $20.5 billion (FY 1981$) was clearly delineated in a Deputy Secretary of Defense memorandum in November 1981. This memorandum specifically highlighted other items relating to the acquisition of the B-1B. These items have been accounted for in other programs elements in accordance with standard Congressional reporting procedures.

These items include the B-1B weapon system trainer, Interim Contractor Support (ICS), MANTECH, Engine Component Improvement Program (CIP), and Production Facility Improvements. Funding for these ancillary programs was included in the 1984 President's Budget. The following funding breakout is from the President's Budget.

TY$ in Millions

	1982 Actual	1983 Est	1984 Est
Simulator			
Procurement*	0	0	0
RDT&E	0	0	10.0
MILCON*	0	0	0
ICS	0	0	3.9
MANTECH*	0	0	0
Engine CIP	0	0	35.8
Production Facility Improvements	15.4	42.5	7.0

*Funding is planned beyond 1984.

MANAGEMENT RESERVE

QUESTION: You have also testified to this Committee that there is a $3 billion management reserve within the B-1B program. If none of these $3 billion are required for contract contingency, how does the Air Force propose to use these $3 billion and when will you be able to release any of these reserves to these hopefully planned second order requirements.

ANSWER: The B-1B baseline program has been estimated to cost $20.5 billion (expressed in FY 1981$) for 100 aircraft, peculiar support equipment, initial spares and the remaining research, development, test and evaluation effort. This cost estimate has been certified by the President as valid and achievable.

Currently, the B-1B program has signed contracts for research and development and the first two production lots (eight aircraft). These contracts represent 24 percent of the program cost. Contract performance data to date indicate the B-1B program is progressing ahead of schedule and is under its budgeted costs. However, the B-1B program must still execute the remainder of the planned program, and negotiate contracts for the remaining three production lots (92 aircraft).

As is done in most major weapon system acquisitions, the B-1B program currently has funds budgeted to cover contract engineering changes, other government costs, and contingencies that may arise during the acquisition/execution process. These funds are necessary to provide the Air Force flexibility for contract negotiations and execution.

As the B-1B program completes the negotiation and contracting process, total program performance data will become available for further analysis.

AF COMMITMENT TO B-1B PROGRAM

QUESTION. General Skantze, questions have been raised recently about the total number of B-1Bs the Air Force ultimately intends to buy. Unfortunately, your proposed procurement program of ramping up production to four aircraft a month and then abruptly stopping this production lends credence to questioning the Air Force's real objective. As you are about to become the Vice Chief of Staff of the Air Force (congratulations by the way), what assurance can you give me concerning the Air Force's commitment to the B-1B program and the advanced technology bomber?

ANSWER. The B-1B program has been carefully structured from its inception to put aircraft into operational utilization as quickly as possible for the least cost. The scheduled production rate for the B-1B program optimizes these considerations.

The Air Force remains firmly committed to a two-bomber approach of producing both the B-1B and advanced technology bomber (ATB). These two weapon systems will place maximum stress on Soviet defenses for years to come, as well as restrict them from concentrating solely on the upgrade of their offensive forces. Further, a combined bomber program allows the Air Force the latitude to procure more or less of either bomber depending on the progress made and cost of each program. This competitive posture is extremely important in controlling costs and exists only in a combined program.

ARMAMENT COSTS FOR B-1B BOMBER PROGRAM

QUESTION. For the B-1B bomber program, for the period FY 83 through FY 86 by fiscal year, identify the armament costs for the program.

ANSWER. The B-1B program reports the costs of the weapons delivery system in the weapon systems line and does not separately identify an armament account. Since the B-1B aircraft does not

have guns or cannons, and will not need the associated bullets and ammunition, a separate account is not required.

The chart below identifies from FY 1983 to FY 1986 the funds, budgeted for in the B-1B baseline estimate of $20.5 billion (FY 1981$), for the procurement of launchers, racks, pylons, and associated armament delivery equipment.

(TY $ IN MILLIONS)

	FY 1983	FY 1984	FY 1985	FY 1986
B-1B Weapon Delivery Equipment Funding	$40	$170	$235	$320

PROGRAMMATIC NON-RECURRING COSTS

QUESTION: For the same time frame as above, detail the programmatic non-recurring costs and what these dollar expenditures will produce in terms of material, services and monthly production rates on components.

ANSWER: For the time frame FY 1983 through FY 1986 the planned budget for B-1B program nonrecurring cost are outlined below:

(TY $ IN MILLIONS)

	FY 1983	FY 1984	FY 1985	FY 1986
B-1B Non-recurring Costs	$1024.3	$852.5	$281.2	$163.6

The major nonrecurring tasks to be accomplished with the funds specified above include the following material and services:

Special tooling
Production engineering
Dimensional special tooling
Special test equipment
System development tools
Nondimensional special tooling
Tooling material/design
Test and debug hardware
Tooling inspection
Manufacturing shop support
Plant arrangement/rearrangement

Many of the nonrecurring tasks are levels of effort that cannot be related to a specific aircraft. These nonrecurring tasks support the production of 100 B-1B aircraft at a maximum rate of 4 aircraft per month.

MATERIALS/SERVICES INCLUDED WITHIN OTHER/OTHER SUPPORT CATEGORIES

QUESTION: With respect to the B-1 Aircraft Weapon System Cost Analysis (the P-5 exhibit), why are the cost elements armament, other, and other support not budgeted or displayed within the B-1 program? What types of materials and services normally are included within the other and other support categories?

ANSWER: On the Aircraft Weapon System Cost Analysis (P-5 exhibit) the cost element for "other" is reserved for miscellaneous items which do not properly fall in any of the other weapon system breakouts for recurring flyaway costs. The cost element of "other

support" is for significant support items peculiar to a program that do not fit into any of the other categories in peculiar ground support equipment.

The equipment, effort and services in these miscellaneous-type cost elements are generally procured separately from the other cost elements within the weapon systems and peculiar ground support equipment accounts.

The B-1B program has not displayed any costs in the "other" and "other support" lines on the P-5 exhibit as this program has budgeted for all items in the weapon system and peculiar ground support equipment accounts in the applicable cost element.

The B-1B program reports the costs of the weapons delivery system in the weapon system line and does not separately identify an armament account. Further, the B-1B program does not include guns or cannons and has no requirement for ammunition.

TOTAL B-1 PROGRAM ACQUISITION COSTS

QUESTION: When these costs in both constant dollars and then year dollars are added to the Presidentially-certified B-1 program cost, what are the total B-1 program acquisition costs that the Air Force is attempting to manage to?

ANSWER: The total B-1B baseline program has an acquisition cost of $20.5 billion (expressed in FY 1981$) which includes all "P-5 other costs" as they apply to the B-1B program. This is the cost estimate for the B-1B baseline configuration established by the Deputy Secretary of Defense in November 1981. The President certified this cost estimate as sound and achievable.

The Air Force is managing the B-1B program in accordance with these cost and configuration guidelines. Current data indicate that the B-1B contractors are operating ahead of the contractual schedule and under budgeted costs.

F-15 FIGHTER

QUESTION: For the record, specify what services, materials and monthly production rates will be provided with the $119.6 million requested for non-recurring expenses.

ANSWER: The FY 84 nonrecurring consists of three projects:

MSIP Phase II	86.9
Empennage Improvements	11.6
*AIS/TITE Improvements	21.1
	119.6

MSIP Phase II: The following services/materials require production nonrecurring funds in this contract:

1. Flight Test - Planning and verification of production incorporation.
2. Fabrication/installation of flight test instrumentation required for production verification.
3. Fabrication of McAir test benches (used initially for integration and then as special test equipment (STE) for production support.)
4. Common digital interface adapter (DIA) for AIS.

5. Fabrication of avionics LRUs.
6. AIS test packages for sustaining stations, system compliance tests, or validation/verification effort.

The planned monthly production rate for F-15 MSIP aircraft is 4/month in FY84 gradually increasing to 8/month in FY88.

Empennage Improvement: The empennage redesign effort will involve redesigning the substructure components in order to reduce the usage of titanium, a strategic material, and strengthen the upper portion of the vertical stabilizer against the vibration environment.

AIS/TITE Improvements: The AIS/TITE improvements incorporate new technology in order to avoid obsolescence and add a Modular Automatic Test Equipment (MATE) capability to the stations. This will make the system viable into the late 1990s. Specific improvements are the controller modernization and reinstrumentation to the AIS. These additions will enable new avionics to be tested on AIS and provide for future growth capability.

*Avionics Intermediate Shop/TEWS Intermediate Test Equipment.

TRAINING EXPENSES FOR F-15 FIGHTER

QUESTION: You are requesting a $115 million for training expenses in FY84. Justify this eight fold increase over last year's request.

ANSWER: The FY 83 President's Budget contained funds for one simulator ($14.5 million). The FY84 President's Budget Request contains $115.4 million for the following:

Simulators (2)	$ 28.1M
Simulators non-recurring	3.6M
Cockpit Procedures Trainer/Egress Procedures Trainer	.5M
Mobile Training Set (MTS) Tapes (Software)	3.4M
MTS	34.7M
Maintenance Training Equipment	45.1M
	$115.4M

Without this training equipment, four additional aircraft/wing/day, as well as numerous types of flightline support equipment, would be required to provide the necessary flightline hands-on training, resulting in additional costs due to equipment wear and tear, POL, and manpower considerations.

Maintenance training equipment, particularly Mobile Training Sets for Field Training Detachments are used to provide true fidelity familiarization, operation, troubleshooting, adjustment, rigging, and repair training of F-15 aircraft and systems. This training cannot be duplicated from a wing's operational aircraft in that no organization would allow inserting malfunctions to add realism in maintenance training on mission capable aircraft. This requirement was reflected in the FY 84 column of the FY 83 Presidents Budget.

PAST FIVE YEARS

QUESTION: For the past five years, provide the following information: number of aircraft purchased, the number of dollars programmed for engineering change orders, and the number of dollars actually obligated for ECOs.

ANSWER: FY	Quantity	ECO Programmed	ECO Obligated
83	39	16.8M	** 5.2M
82	36	22.7M	*18.1M
81	42	15.2M	15.2M
80	60	17.5M	17.5M
79	78	21.0M	21.0M

* $22.7M to be obligated by Dec 83.
** $16.8M to be obligated by Mid-FY 84.

DOLLARS OBLIGATED

QUESTION: For the FY 81 F-15 procurement program, how many dollars have been obligated and how many dollars remain unobligated?

ANSWER:

Approved Program	949.500M	
Obligated (as of 15 Jul 83)	945.327M	
Unobligated	4.173M	(to be obligated by 30 Aug 83)

GENERAL PRODUCTION RATE

QUESTION: For all aircraft in Budget Activity 1 and Budget Activity 2, provide the minimum sustaining production rate, the minimum economic production rate in effect for the FY 84 funded delivery period and the maximum production rate with existing tooling at the beginning of the FY 84 funded delivery period.

ANSWER: In responding to this question, the following assumptions were made:

a. The question is concerned only with existing manufacturing plant and facilities to be in place by FY 1984. Consequently, programmed facilitization and rate tooling augmentations which are to increase capacity in the outyears are not considered.

b. No response is required for aircraft systems with no planned production in FY 1984. This eliminates the A-10, F-5, E-3A, C-130H and C-140B programs from further consideration.

c. Off-the-shelf procurements for the Wide Body Cargo Aircraft and European Distribution System Aircraft are not applicable to the question.

d. The "minimum sustaining (MS) production rate" is the lowest production rate which can be achieved in FY 1984 without breaching existing contractual arrangements and/or resulting in diseconomies (other than inflation) to restore production in a later year.

e. The "minimum economic (ME) production rate" is one which makes effective and efficient utilization of existing manufacturing plant and facilities in place by FY 1984. This rate is based on a one-shift operation and is subject to contractual limitations.

f. The "maximum production (MP) rate" is the highest production rate which can be achieved in FY 1984 with existing plant and facilities, normally on a two-shift operation and subject to contractual limitations.

The following are the minimum sustaining (MS), minimum economic (ME) and maximum production (MP) rates for aircraft systems in Budget Activity 1 and Budget Activity 2 with planned production in FY 1984:

FY1984 PRODUCTION CAPABILITIES

SYSTEM	MS RATE	ME RATE	MP RATE
F-15	4/mo.	8/mo.	12/mo.
F-16	10/mo.	10/mo.	20/mo.
KC-10	8/yr.	12/yr.	24/yr.
C-5B*	4/yr.	4/yr.	4/yr.
MC-130H**	2/yr.	2/yr.	2/yr.
B-1B***	10/yr.	10/yr.	10/yr.

*-Under terms of the C-5B Firm Fixed Price contract, no adjustments can be made to FY 1984 quantities without resulting in a renegotiation of the total program buy.

**- Any reduction to the FY 1984 quantity buy for the MC-130H program would result in diseconomies associated with the avionics integration program. Quantities cannot be increased in FY 1984 due to limitations on the use of the Systems Integration Lab for the avionics program.

GENERAL PRODUCTION RATE

***-Any reduction to the FY 1984 quantity buy for the B-1B program would delay production a-celeration to the eventual economic rate of 4 aircraft per month achieved in FY 1986, thus resulting in diseconomies. The FY 1984 quantity buy cannot be increased because of associated long lead requirements which must be funded two years in advance.

F-16 FIGHTER

QUESTION: For the record, identify what materials, services and/or production rates were achieved through the expenditure of $317.6 million in 1983?

ANSWER: The $317.6 million referenced is the FY 84 advance procurement credit for FY 82 and FY 83 funds appropriated to support the FY 84 program. A breakout of the $317.6 million is as follows:

	Amount	Program Content Procured
FY82	$149.6M	Economic order quantities of raw material, avionics/subsystems, and general material for the FY 84 procurement of 120 aircraft on the multiyear contract.
FY 82 Subtotal	$149.6M	
FY83	$57.4M	Advance procurement for long lead materials and avionics/subsystems for 120 FY 84 aircraft.
	38.3	Advance procurement for 120 FY 84 F100-PW-200 engines.
	33.9	Advance procurement for 120 FY 84 APG-68 radars.
	15.1	Components for 120 FY 84 Radar Warning Receiver (RWR) sets.
	6.3	Components for 120 FY 84 ejection seats.
	4.5	Components for FY 84 procurement of BRU-40/A Multiple Stores Ejector Racks (MSER).

(Continued on next page)

	12.5	Procurement of GFAE to support 120 FY 84 aircraft, including external tanks, 20MM gun systems, cockpit instruments, life support systems, and communication equipment.
FY83 Subtotal	$168.0M	
TOTAL	$317.6M	

UNCERTAINTIES

QUESTION: Given the uncertainties as to which fighter engine will go into future F-16 production, how do you justify requesting $30 million for a surge capability in FY84? Does this investment of $30 million save us any money at all?
ANSWER: The $30 million requested for engine surge would procure a pool of parts which have the longest lead times (castings/forgings/etc). This pool would have to rotate (i.e., parts from this pool would be used in production engines and new parts put in the pool) in order to insure against obsolescence. Should a new engine be introduced into the F-16, a similar procedure could be used to rotate this pool from the current engine to the new engine. The intent of the engine surge funding was to reduce the lead time needed to rapidly respond to unanticipated requirements, whether for new engines or spare parts; the intent was not to save money. However, in the event that we wanted to surge the production line inside normal lead times, premium costs would probably be encountered and a pool of long lead parts would probably reduce those premiums.

ENGINE COMPETITION

QUESTION: You are also requesting $58.9 million to support something called engine competition. What is this money specifically for and how is it different than just merely asking for $58 million more in advance procurement for engines?
ANSWER: These funds are required to procure long leadtime castings, forgings, etc. for the engine selected from the alternate fighter engine competition. This is additional engine advance procurement associated with the transition to the new engine configuration.

IMPACT OF DENYING REQUEST

QUESTION: What would be the impact of denying your request for this $58.9 million in engine competition funds?
ANSWER: If the request is denied, we will not be able to initiate efforts in FY 1984 required to support incorporation of the new engine in the FY 1985 aircraft procurement. Delayed incorporation of the improved durability/reliability engine will result in loss of life cycle cost savings associated with the lower support costs and maintenance requirements of the improved engine.

In addition, we will have to request new proposals from the competing contractors reflecting the new delivery schedule. We will then have to reaccomplish the extensive evaluation and contract negotiations leading to selection of the new engine.

SELECTING/ADOPTING/INTEGRATING NEW FIGHTER ENGINE

QUESTION: General Skantze would you review for me what the Air Force plans are for selecting and then adopting and integrating a new fighter engine into your F-15 and F-16 production program.

ANSWER: Our competition is underway with contractor proposals due in mid-August of this year. We are aiming toward award in early 1984. As part of the overall evaluation process, a large number of incorporation options are being considered. We currently plan to integrate the new engine or engines into the fleet in at least wing size blocks. The first aircraft delivered with a new engine could be as early as June 1986.

DECISION TO INTRODUCE NEW/SECOND FIGHTER ENGINE

QUESTION: When will you decide whether or not to introduce a new or second fighter engine to the fleet?

ANSWER: Our source selection decision is planned for early in 1984.

SUPPORT OF STRATEGY

QUESTION: How much have you budgeted or requested in FY 84 to support this strategy and in which programs have these requests been made?

ANSWER: In the Alternate Fighter Engine program, we have requested $132 million with $98 million supporting the F110 full scale development and $34 million supporting the full scale development of the Digital Electronic Engine Control and the gear type main fuel pump for the F100 engine. Under the Component Improvement Program, an additional $29 million is included for the F100 increased life core.

Recognizing that either engine will cost more initially to achieve the desired life cycle cost benefits, we have budgeted additional long lead funding with $4 million in the F-15 program and $58.9 million in the F-16 program.

C-17

QUESTION: Won't a small budget request such as this invite further program slippage?

ANSWER: No. With the increased authorization in FY 83 ($1 million to $60 million), we have structured a program to efficiently increase the level of effort necessary to begin full scale development (FSD) in FY 85. Our FY 84 request of $26.8 million when combined with the $60 million (total of $86.8 million) is adequate to execute this pre-FSD activity.

The program being considered for submission in the FY 85 President's Budget was based on the FY 84 request and phased with other high priority Air Force programs to remain within budgetary limits.

C-17s PROGRAMMED FOR PROCUREMENT

QUESTION: How many C-17s are now programmed for procurement? What aircraft does the Air Force see as being phased out as the C-17 is phased in?

ANSWER: The C-17 will add the last increment of intertheater airlift capability to reach the Congressionally Mandated Mobility Study recommended baseline of 66 million-ton-miles per day. It will also provide a direct delivery, dual mission (inter and intra-theater) outsize airland/airdrop capability we do not have in the force today and will replace the lost capability from retiring C-130A model and C-141 aircraft beginning in the mid-1990s.

The exact number of aircraft programmed for procurement has not been established at this time. The present program is based on 182 aircraft which is the number derived from C-X source selection and does not relate to the requirement stated above. Force structure determination will be done as we start full scale development in FY 85.

IMPACT ON C-17 PROGRAM

QUESTION: What would be the impact on the C-17 program if the Senate's $13 million cut in the C-17 is sustained in the authorization conference?

ANSWER: This reduction amounts to a decrease of 16% in the FY 83/84 program planned to achieve the best possible technical and management definition in preparation for a full scale development (FSD) start in FY 85.

One of the primary efforts reduced will be the very important vendor integration and definition studies necessary to properly ready engineering and procurement packages for FSD. This is particularly critical in the highly integrated digital avionics and flight controls systems.

Other work efforts impacted would be scheduled wind tunnel testing; engine exhaust/thrust reverser model testing; on-board test subsystem definition; Logistics Support Analysis program development; composite structure application studies; mock-up studies of new technology ability and availability technology.

These activities are critical to properly phase the planned program into FSD in order to begin tool fabrication and conduct a preliminary design review scheduled in FY 85.

CRAF Program

QUESTION: You have a $144.3 million budget request pending to continue the CRAF program, and we are aware of recent positive developments in this program, including favorable industry responses to a request for proposals. Please bring us up to date on this program and its prospects for the immediate future.

ANSWER: A Request for Proposal (RFP) for the CRAF Enhancement Program was issued on June 8, 1983 with responses due on July 7, 1983. Twenty-four wide body civil aircraft were offered by the airlines for retrofit to a cargo convertible configuration. This RFP was part of an Air Force effort to accelerate the pace of the program and obtain current data for use in making an informed decision about its future. While discussion of specific airlines and unit cost is restricted as the government negotiates these program details, it can be said that the capability of the aircraft offered and the attractiveness of their unit cost has prompted the Air Force to push for contract award before the end of FY83 and to fund the program in the outyears. The program remains the most cost

effective source of additional bulk and oversize airlift. Previous estimates stated it would provide this capability at one-sixth the cost of placing similar aircraft in the organic military fleet.

UTILIZATION OF FUNDING REQUESTED FOR 1984

QUESTION: Although the Air Force has been somewhat indifferent to the potential of CRAF, we do seem to have some promising developments now. Presuming your current efforts are successful and we can achieve some tangible results, how do you plan to utilize the funding requested for 1984?

ANSWER: The funding requested for FY84 will be used to fund the retrofit of additional existing wide body aircraft. These aircraft will follow those which will be contracted for during FY83 using prior year funds. The exact number procured will depend on the type of aircraft (B747, DC-10, L1011) and the final price negotiated. Unit costs offered in response to the program Request for Proposal issued on June 8, 1983 indicate that this cost effective source of additional bulk/oversize airlift will be available at a price which will further improve its stated advantage of one-sixth the life cycle cost of alternative sources of capability.

AIR FORCE POSITION

QUESTION: The Senate Armed Services Committee recommended deleting the 1984 CRAF funds and shifting prior year money to other programs. What is the Air Force position now?

ANSWER: The Air Force will support the decision of the Secretary of Defense to appeal the action of the Senate Armed Services Committee.

KIND OF AUTHORITY/TYPE OF CONTRACT

QUESTION: What kind of authority and what type of contract is the Air Force contemplating to implement CRAF Agreements? Are these service leases, in effect?

ANSWER: The Air Force has abandoned consideration of any form of leasing for the CRAF Enhancement Program. The current program Request for Proposal (RFP) was built around traditional procurement procedures which do not in any way resemble service leases, or any other form of lease. Therefore, the new restrictions on military leasing authority in the pending supplemental appropriations bill will have no effect on the program.

EVALUATION OF PROPOSED CRAF CONTRACTS

QUESTION: This committee recently recommended provisions restricting military leasing authority. We would like to have an evaluation of the proposed CRAF contracts and how they might or might not be affected by those new restrictions that are contained in the pending supplemental appropriations bill.

ANSWER: The Air Force has abandoned consideration of any form of leasing for the CRAF Enhancement Program. The current program Request for Proposal (RFP) was built around traditional procurement procedures which do not in any way resemble service

leases, or any other form of lease. Therefore, the new restrictions on military leasing authority in the pending supplemental appropriations bill will have no effect on the program.

PREFERRED OFF BUDGET FINANCING TECHNIQUE

QUESTION: Staff has been briefed that there are a number of alternative and off-budget financing alternatives being considered within the Air Force for this program. Describe for the record the preferred off budget financing techniques and indicate what the Air Force intends to pursue this strategy and when.

ANSWER: The Air Force has abandoned consideration of any form of leasing for the CRAF Enhancement Program. The current program Request for Proposal (RFP) was built around traditional procurement procedures which do not in any way resemble service leases, or any other form of lease. Therefore, the new restrictions on military leasing authority in the pending supplemental appropriations bill will have no effect on the program.

ADVANCE PROCUREMENT FOR E-3A AWACS

QUESTION: The FY 1984 Air Force budget requests $76.2 million for advance procurement for the E-3A AWACS early warning aircraft. These funds would be used to support eventual deployment of additional AWACS for continental air defense, in tandem with more F-15 fighters. What is behind this change in our defense strategy for continental air defense?

ANSWER: As ballistic missiles become the predominant Soviet threat against North America, the United States and Canada systematically reduced North American air defense capabilities. This strategy was further reinforced by intelligence projections that the Soviet bomber force would decline. Events have not borne out that projection, however. In fact during the late 60's and throughout the 70's the Soviet bomber force remained constant. Currently, the Soviet Union is developing a modern cruise missile force, producing new variants of existing bombers and deploying a completely new bomber. To remedy the decline in air defense capabilities and respond to the increasing Soviet airbreathing threat to North America, President Reagan announced the procurement of additional AWACS for North American air defense as part of his Strategic Modernization program. Concurrently, the Department of Defense developed a North American Air Defense Master Plan in consultation with Canada. The plan, which orchestrates an orderly force modernization program for Strategic Defensive forces, was signed by Secretary of Defense Weinberger and sent to Congress in March 1982.

OTH-B VS AWACS PATROLS

QUESTION: You are also trying to start the Over-the-Horizon Backscatter Radar program. Isn't it more cost effective to use the OTH-B system in lieu of high cost AWACS Patrols?

ANSWER: Yes, OTH-B radar is a more cost-effective system for

full-time wide area surveillance. However, until the OTH-B radar is deployed, DOD has directed the AF to fly periodic AWACS patrols around the CONUS periphery beginning in FY 84. They will provide some warning capability of any no-warning attack by bombers/ALCM carriers until deployment of the East Coast OTH-B in (d). The West Coast site will not be completed until [deleted] IOC of the south-looking site is planned for [deleted].

When deployed, the OTH-B system will provide only Tactical Warning/Attack Assessment (TW/AA) with its wide area, all altitude radar coverage. Once the OTH-B radar has given raid warning, the E-3 provides the necessary command and control for the fighters engaging the threat. During wartime, however, the [deleted].

NORTH AMERICAN AWACS FORCE IN SUPPORT OF AIR DEFENSE MISSION

QUESTION: Don't we already have a North American AWACS force which can be used in support of the air defense mission?

ANSWER: While there (d) AWACS currently dedicated exclusively for North American air defense, JCS has designated [deleted] out of the total force to support the air defense mission in times of tension, crisis or war. [Deleted] aircraft are far short of (d) specified in the DoD North American Air Defense Master Plan, sent to Congress by Secretary of Defense Weinberger last year. [Deleted] are required to provide continuous coverage of [deleted].

Additional AWACS would be required to extend full coverage beyond the initial [deleted] period.

SPECIFIC PLANS FOR ADDITIONAL AWACS

QUESTION: Do you have any specific plans as to how you will use the additional AWACS after our newer strategic C^3 systems like OTH-B are phased in?

ANSWER: The additional AWACS are necessary to provide a designated force of [deleted] for command and control of the fighter force against the new bomber and cruise missile threat projected to become operational in the 1986-87 time frame. Specific plans call for (d) AWACS to provide a minimum [deleted].

[Deleted]. These AWACS can maintain [deleted] [deleted]. Additional AWACS, however would be required to extend full coverage beyond the [deleted] period.

The OTH-B system will provide only Tactical Warning/Attack Assessment (TW/AA), i.e. raid warning. The E-3 will then provide the necessary command and control (C^2) for our damage limiting forces when tactically warranted or when the ROCCs are no longer able to function. Airborne E-3s provide our [deleted].

CUT IN AWACS REQUEST

QUESTION: The House Armed Services Committee deleted $76.3 million from your AWACS request, but we gather the Department is appealing this reduction. Tell us what's wrong with that cut, especially since the Air Force is said to be looking at cancelling the buy in its 1985 budget preparations.

ANSWER: The Department has appealed the House reduction of $76.2 million since the Air Force, during its budget preparations, did not cancel the procurement of three AWACS in FY85. The full $76.2 million is needed to correctly fund the advance procurement of the three aircraft in FY85.

Execution of EDSA

QUESTION: The Air Force is requesting $32.9 million to purchase 16 off-the-shelf small cargo aircraft for use in Europe. Four hundred additional people will be required to man the squadron. In light of the higher priority manpower requirements for the ground launch cruise missile, the limit on European troop strength and overall limits on military end strength, can the Air Force properly execute this program this year?

ANSWER: The manpower required to introduce and operate additional European Distribution System (EDS) Aircraft was programmed in the President's FY84 budget request. The JCS recommended and the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) approved the minimum essential manning posture for FY84 which includes full EDS funding. The Air Force expects to meet the directed FY84 manpower ceiling in Europe while maintaining the required manpower program for EDS.

OPERATIONAL IMPACT OF DEFERRING EDSA PROCUREMENT

QUESTION. Funds for the additional storage and computers to support the proposed European Distribution System have been provided. It appears that existing aircraft (e.g. C-130 and T-39) can be used for this requirement at least on an interim basis. What would be the operational impact of deferring EDSA procurement?

ANSWER. Delaying EDSA procurement would significantly jeopardize the future readiness posture of Air Force tactical aircraft in Europe. The capability of the European Distribution System to provide "assured distribution" for tactical aircraft spares/engines is dependent on a dedicated transportation link. Without this link, the system is subject to higher priorities and loses the flexibility inherent in a dedicated logistics resupply system.

The true value of an operating European Distribution System is the readiness posture it generates prior to hostilities and the capability it insures during the initial stages of a conflict. As validated by the Rand corporation, the equivalent of an additional 304 operational tactical aircraft can be generated with an "assured distribution" system in place. Having this number of aircraft grounded or operating at a reduced capability because there is no transportation for spares or higher priorities exist for in place transportation assets would seriously affect our tactical warfighting capability. As has been previously recorded, EDSA offers an extremely high payoff in combat potential for the expense incurred.

Request for EDSA Proposals

QUESTION: Why does your request for EDSA proposals ask for options on an additional 64 aircraft? What are your requirements? When did you ever suggest to Congress a purchase of that scope?

ANSWER: The request for proposal for the EDSA calls for two aircraft to be delivered with options for 16 additional aircraft in FY84 to make the EDS operational (a total of 18 aircraft). The remaining additional aircraft options were included to provide a pricing matrix and the latitude to potentially buy additional aircraft should the United States government so desire. The Air Force has taken no funding action for other than the 16 additional aircraft in FY84. The 16 aircraft will give the Air Force a total of 18 EDS aircraft which is the total EDS requirement as originally explained to Congress.

Create a Demand

QUESTION: Are you trying to create a demand for aircraft by writing in an unbudgeted purchase option?

ANSWER: No. The Air Force proposes to buy 16 additional aircraft in FY84 bringing, as previously noted, the total EDS aircraft buy to 18. Options for the remaining aircraft would be allowed to lapse with no obligation on the part of the government.

NGT

QUESTION: This is the third year in which you have requested R&D funds for the Air Force's Next Generation Trainer. The 1984 R&D request is $123.5 million, but you also want $5.8 million to begin advance procurement.

Why are you requesting advance procurement when you are in the middle of full-scale engineering development?

ANSWER: Advance procurement is needed not later than Dec 1983 in order to retain the two production options included in the current fixed price incentive firm (FPIF) contracts negotiated in a competitive environment with Fairchild Republic Co. and Garrett Turbine Engine Co. and awarded on 2 Jul 82. In an effort to minimize cost and risk, a balance of the development and production schedule versus technology risk was derived.

The current contracts reflect this balance of an acceptable amount of concurrency between development and procurement schedules. The risk is low because state of the art technology is being used in the development program; the avionics are GFE; the aircraft will be a simple trainer with a stable design; and Critical Design Review will be complete prior to the release of the advance procurement to the contractor.

The advance procurement is mandatory for long lead items so the production option can be exercised on schedule in FY 85 and permit aircraft deliveries to support IOC in FY 87.

ADVANCE PROCUREMENT MONEY FOR NGT

QUESTION: The FY 1984 justification for the NGT says the prime contractor will still have to "complete engineering drawings, tool planning, tool design and tool manufacture." Ground subsystems testing and engine component development tests also have to be done in FY 1984.

Shouldn't advance procurement money for NGT be put up after the completion of this work?

ANSWER: Advance procurement is needed not later than Dec 1983 in order to retain the two production options included in the current fixed price incentive firm (FPIF) contracts negotiated in a competitive environment with Fairchild Republic Co. and Garrett Turbine Engine Co. and awarded on 2 Jul 82. In an effort to minimize cost and risk, a balance of the development and production schedule versus technology risk was derived.

The current contracts reflect this balance of an acceptable amount of concurrency between development and procurement schedules. The risk is low because state of the art technology is being used in the development program; the avionics are GFE; the aircraft will be a simple trainer with a stable design; and Critical Design Review will be complete prior to the release of the advance procurement to the contractor.

The advance procurement is mandatory for long lead items so the production option can be exercised on schedule in FY 85 and permit aircraft deliveries to support IOC in FY 87.

SLIP IN FY 84 ADVANCE PROCUREMENT FUNDING FOR NGT

QUESTION: How would a slip in the FY 1984 advance procurement funding affect cost growth for the program?

ANSWER: A slip in the FY 1984 advance procurement funding would invalidate the FY 1985 and FY 1986 production options included in the fixed price incentive firm contracts awarded to Fairchild Republic Co. and Garrett Turbine Engine Co. in Jul 82. These contracts were negotiated in a competitive environment. Renegotiation of these contracts would be done in a sole source environment. Production and IOC would be delayed by one year, resulting in cost growth of at least $180 million and potentially as much as $300 million.

R&D FUNDS FOR AF NGT

QUESTION: This is the third year you have requested R&D funds for the Air Force's Next Generation Trainer. The 1984 R&D request is $123.5 million, but you also want $5.8 million to begin advance procurement. How do you justify requesting advance procurement when you are in the middle of full-scale engineering development?

ANSWER: Advance procurement is needed not later than Dec 1983 in order to retain the two production options included in the current fixed price incentive firm (FPIF) contracts negotiated in a competitive environment with Fairchild Republic Co. and Garrett Turbine Engine Co. and awarded on 2 Jul 82. In an effort to minimize cost and risk, a balance of the development and production schedule versus technology risk was derived.

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The advance procurement is mandatory for long lead items so the production option can be exercised on schedule in FY 85 and permit aircraft deliveries to support IOC in FY 87.

SUBSTANTIAL COST GROWTH

QUESTION: How would a slip in the FY 1984 advance procurement funding create any substantial cost growth for the NGT program?

ANSWER: A slip in the FY 1984 advance procurement funding would invalidate the FY 1985 and FY 1986 production options included in the fixed price incentive firm contracts awarded to Fairchild Republic Co. and Garrett Turbine Engine Co. in Jul 82. These contracts were negotiated in a competitive environment. Renegotiation of these contracts would be done in a sole source environment. Production and IOC would be delayed by one year, resulting in cost growth of at least $180 million and potentially as much as $300 million.

COST SHARING AGREEMENTS

QUESTION: Press reports indicate we are negotiating with Canada for cost-sharing agreements on the heavy expense of modernizing our North American air defenses. Where do we stand on those negotiations?

ANSWER: Joint cost sharing negotiations will continue for the next several months in order to develop specific cost sharing formulas. The Air Force is participating in responsibility sharing discussions with representatives from both the US and Canadian governments. The Canadian delegation advised the US delegation that they have completed an independent analysis of North American air defense requirements. The study concluded that the surveillance upgrades contained within the Air Defense Master Plan, specifically the enhanced DEW Line, OTH-B and AWACS, are urgently needed to meet the growing Soviet air breathing threat and provide both countries the tactical warning necessary to deny a Soviet no warning attack option. Additionally, the Canadians indicated that they are willing to share in the costs of the surveillance upgrades to ensure that the air defense modernization efforts are successful.

NORAD MODERNIZATION

QUESTION: How much of your FY 1984 budget is directed to NORAD modernization? Does your request contemplate Canadian cost sharing?

ANSWER: The FY 84 President's Budget contains $843.3 million for Strategic Air Defense modernization costs. These costs include the Strategic Defense modernization upgrades as outlined in the DOD North American Air Defense Master Plan submitted to Congress in 1982. Specifically, the costs associated with Over the Horizon Backscatter Radar (OTHB), Improved Distant Early Warning Line (DEW), Airborne Warning And Control Systems (AWACS) and F-15 programs are included.

The costs do not reflect Canadian contributions, since the joint sharing negotiations will continue for the next several months in order to develop specific cost sharing formulas.

FUNDING RESTRAINTS

QUESTION: Why shouldn't we recommend funding restraints for this program as a means of encouraging Canadian participation?

ANSWER: Recommending funding restraints at this time may be premature and counter-productive to ongoing negotiations with the Canadians. The Air Force is participating in responsibility sharing discussions with representatives from both the US and Canadian governments. The Canadian delegation advised us that they have completed an independent analysis of North American Defense requirements. The analysis concluded that the surveillance upgrades contained within the DOD North American Air Defense Master Plan, specifically the enhanced DEW Line, OTH-B, and AWACS are urgently needed to meet the growing Soviet air breathing threat and provide both countries the tactical warning necessary to deny a Soviet no warning air attack option.

Additionally, the Canadians indicated that they are willing to share in the cost of the surveillance upgrades to ensure that the air defense modernization efforts are sucessful.

The joint cost sharing negotiations will continue for the next several months in order to develop specific cost sharing formulas.

PURSUIT OF MULTIYEAR PROGRAM

QUESTION: The Air Force is requesting $254 million to begin a multiyear contract to install new CFM56 engines on the KC-135 tanker aircraft. Since the engines will not begin delivering until late FY 1984, why is the Air Force pursuing a multiyear program at this stage?

ANSWER: The Air Force requested multiyear procurement for the KC-135R for two reasons. First, there is a high degree of confidence in program cost based on the two annual firm, fixed price contracts (FY 1982 and FY 1983) already negotiated and awarded. Second, flight testing of the initial production certification aircraft was completed in March 1983. Successful flight test results in a program of low technical risk provide a high level of confidence in the modified aircraft configuration.

PRESENT VALUE COST ANALYSIS

QUESTION: A GAO report last month used a present value cost analysis to conclude the Air Force could save over $260 million if used B-707 aircraft engines were installed on 200 KC-135's. Has the Air Force examined this alternative?

ANSWER: The Air Force has analyzed the alternative proposal to reengine with used B-707 aircraft engines, the JT3D, several times over a three year period. The latest analysis, Tanker Modernization Alternatives, was completed in April 1983. Each study has concluded the CFM56 modernization program is more cost-effective over a 20 year life cycle than the JT3D.

While cost is a key criterion, equal consideration must be given to capability. The overriding purpose of the KC-135 modernization program is to provide added refueling capability to resolve a serious and growing tanker shortfall. The

CFM56 increases capability by 50 percent and significantly reduces the shortfall. The JT3D increases capability by 20 percent, falling well short of the needed increase in capability.

INTERIM SOLUTION TO CFM-56

QUESTION: Over the last two years, Congress has added funds to reengine over 60 KC-135's with B-707, JT3D engines. Air Force data on the Air Guard tankers clearly demonstrate improved fuel efficiency, greater range, better performance. Why hasn't the Air Force budgeted to continue this program as an interim solution to the CFM-56?

ANSWER: Budget constraints forced the Air Force to spend the limited funds available for KC-135 modernization on the more cost-effective solution to the air refueling shortfall. While the JT3D offered a near term solution to the problems associated with the present J57 engine, the CFM56 represented the long term solution to the current aircraft limitations and the refueling shortfall. Any funds diverted from the CFM56 to the JT3D program would delay the ramp-up to an efficient production rate for the CFM56 and delay the eventual resolution of the tanker shortfall.

REENGINING ENTIRE TANKER FLEET

QUESTION: The cost to reengine the KC-135 with the CFM56 engine is roughly $16 million per aircraft as opposed to $4.5 million with the JT3D engine. Although the CFM56 has twice the range and fuel efficiency of the JT3D, the cost is nearly four times higher. Given the emerging trend to hold down future defense growth, is the Air Force still committed to reengining the entire tank fleet with CFM56 engines?

ANSWER: Yes. The focus on initial acquisition costs overlooks two equally important factors: capability and operating and support costs for the aircraft. When those factors are analyzed, the CFM56 emerges as the more cost effective approach, and the only KC-135 modernization alternative which provides the required increase in refueling capability.

The CFM56 increases capability by 50 percent, adding 307 KC-135A equivalents to the force. The JT3D increases capability by 20 percent, which would add only 123 KC-135A equivalents to the force if enough donor 707 aircraft were available to reengine the entire KC-135 fleet. Compared to the refueling capability required in existing operations' plans, the CFM56 significantly reduces the tanker shortfall; the JT3D does not.

Initial acquisition cost is smaller than both fuel costs and maintenance support costs over 20 years. The modern technology CFM56 engines are more fuel-efficient and will require fewer maintenance man hours than the older JT3D. When ownership costs over 20 years are added to initial acquisition costs and capability is considered, the CFM56 is the more cost effective solution to the refueling shortfall.

REAL PRIORITY FOR ATF

QUESTION: The Air Force started the Advanced Tactical Fighter

program last year. But you just sent over a request to reprogram $2 million away from the ATF.

What's the real priority for this program, and why do you need the entire $37.4 million R&D request for FY 1984?

ANSWER: The Advanced Tactical Fighter program continues to be a very high priority AF development program. The $2 million reprogramming action was initiated to fund a critical shortfall in operations and maintenance funding. Due to delays in awarding both initial engine and airframe development contracts until late 1983, the Air Force determined that a $2 million cut in FY 1983 would have minimal impact if these funds could be recouped in later years. Engine development funding is already below requirements due to reduced Navy commitments, and funding for airframe development is at the absolute minimum level to support the efforts of up to eight airframe contractors. Any cuts to the FY 1984 request would aggravate these funding shortages.

VALIDITY OF FY 84 REQUIREMENTS

QUESTION: Just how valid are your FY 1984 requirements? Will you be able to select three alternative aircraft concepts for further design development by the end of FY 1984?

ANSWER: Our FY 1984 requirements remain valid and the request is the minimum necessary to execute our planned program. Two to three competitive concepts will be selected from among the initial designs in late FY 1984 for follow-on design development and analytic validation.

ADVANCED TECHNOLOGY ENGINE FOR ATF

QUESTION: Will the Advanced Technology Engine you're looking at for ATF have more thrust than the F100 or F110?

ANSWER: The ATF engine thrust is currently estimated to be approximately 30,000 pounds, but the final thrust will be optimized when aircraft weight is finalized. Thus the sea level static, uninstalled thrust of the ATF engine would be higher than the F100 or F110; however, that is not the key parameter driving the new engine. The new engine must provide a substantially higher non-augmented thrust than today's engines to allow for sustained supersonic persistence.

AFFECT ON PROGRAM PLANS

QUESTION: If you are forced to drop your goal of 40 tactical fighter wings, how will that affect your program plans with respect to the ATF?

ANSWER: ATF is not planned as an addition to force structure, but as modernization of our air-to-air fighter force to allow us to stay abreast of the threat. In the time frame that we plan to field the ATF the Soviets will have fielded several new fighters that will approach, if not exceed, the capability of our F-15's. The ATF is necessary to ensure a qualitative superiority over the threat.

ACCELERATION OF ATF

QUESTION: Why shouldn't we accelerate the ATF and terminate the Dual Role Fighter (DRF) program?

ANSWER: There are two distinctly different programs. The DRF will fill, in the near term, the need for increased range and payload and around-the-clock requirements of our air-to-surface force structure.

The ATF, on the other hand, is programmed to fill the air-to-air requirements of the late 90's into the 21st century. This aircraft will offer significant technological advantages over present aircraft and is necessary to ensure our qualitative superiority over the threat.

PROSPECTS FOR JOINT US/EUROPEAN DEVELOPMENT PROGRAM

QUESTION: What are the prospects for a joint US-European fighter development program? How seriously are you examining this as a means to pool NATO R&D resources?

ANSWER: The US and NATO allies have established an ad hoc working group to determine the possibilities for cooperative efforts in developing next generation fighter aircraft. At this time the prospects for joint fighter development program appear unlikely due to differences in US-European operational requirements. Despite these differences, however, the potential exists for cooperative development for some fighter aircraft technologies and subsystems.

ACCURATE PORTRAIT

QUESTION: Recent press reports have stated that the Air Force is willing to slow the ATF in order to incorporate stealth technologies into the design of the aircraft. Is this an accurate portrait of where we are on ATF?

ANSWER: The Air Force plans to incorporate all appropriate technologies into the ATF. This incorporation is not expected to cause a delay in the program.

COMPETITIVE CONTRACTS

QUESTION: Have competitive contracts for the ATF engine and airframe design been awarded?

ANSWER: Competitive contracts for both engine design and alternative airframe design concepts are scheduled for award in Sep 83.

FINAL ATF DESIGN

QUESTION: When will you make a decision on the final ATF design?

ANSWER: A decision on the final ATF design will be made at Milestone II (full scale development decision for airframe and engine) in the late 1980's. Up to eight design contracts will be

initially awarded with subsequent down selection to two to three for critical design and finally one for Full Scale Engineering Development (FSED).

PROCUREMENT

AIRCRAFT PROCUREMENT, ARMY

BLN 3--RC-12D

QUESTION: For the Improved Guardrail system, how many integrated processing facilities will ultimately be required? How many are there currently in the inventory? Where will the systems requested in 1984 and 1985 be assigned?

ANSWER: The Army plans to procure a total of four Improved Guardrail V Systems. Currently, there are no Improved Guardrail V integrated processing facilities (IPF) in the inventory. Two IPFs are being constructed by the prime contractor, ESL Inc, Sunnyvale, California. These will be fielded to [deleted]. The 1984 Budget Request is for the third system which will be deployed to [deleted]. The fourth system planned for procurement in 1985 will be fielded in [deleted].

BLN 5/6 and 9/10--UH60A

QUESTION: You are requesting advance procurement funds for 1985 procurement of Black Hawk airframes based on an assumed follow-on multi-year procurement. Provide a table which shows how the advance procurement funds will be applied to out-year production under the assumption of: (1) Congressional approval of a follow-on multi-year procurement, and (2) follow-on multi-year procurement is not approved.

ANSWER: The tables below depict the application of Fiscal Year 1984 advance procurement funds associated with single and multiyear procurement of the airframe.

Approval of Fiscal Year 1985-1987 Follow-on Multiyear Procurement
($ In Millions)

FY	85	86	87	Total
Advance Procurement	70.9	11.6	4.7	87.2

Single Year Procurement Fiscal Year 1985

FY	85	Total
Advance Procurement	40.7	40.7

QUESTION: Why is a follow-on (1985-1987) Black Hawk multi-year procurement in the best interests of the government. What is your estimate of the potential cost savings of executing a second multi-year contract over a series of three single year contracts?

ANSWER: A follow-on (Fiscal Year 85-87) multiyear procurement will further sustain program stability and provide cost savings to the government over single year contracting. The current estimated cost savings of multiyear contracting over single year contracting are $101 million of which $82.1 million would be realized by the UH-60A BLACK HAWK program, and the balance by the EH-60A QUICK FIX program.

QUESTION: With respect to the current multiyear contract, have there been more savings than initially forecast? If so, explain what has permitted these additional savings; how much do they total, and what year money are these savings?

ANSWER: Current estimate of savings from the Fiscal Year 82-84 multiyear versus single year contracting remains as $81.1

million. In Fiscal Year 1983 and Fiscal Year 1984 additional reductions in costs may occur in the multiyear contract as the result of accelerated production deliveries and the Economic Price Adjustment contract clause.

QUESTION: Why should these savings not be transferred forward and applied to the 1984 production program?

ANSWER: The Fiscal Year 1983-1984 budgets were adjusted to reflect the funding necessary to execute the Fiscal Year 82-84 multiyear contract. Included in the budget adjustments was the $81.1 million savings realized from the multiyear contract award. Any funds recovered from other reductions would not generally be available in time to be applied to Fiscal Year 84 procurement.

QUESTION: Provide annotated copies of Exhibits 2 and 3 of the MYP justification material reflecting the results of contract negotiations for the T-700 MYP.

ANSWER: Negotiated savings on the T-700 series engine multiyear contract are not available. Negotiations are in process with an anticipated contract award of May 1983.

QUICK FIX/EH-60A

QUESTION: What services and the hardware will the funds provided for non-recurring costs provide in FY 1984 and FY 1985?

ANSWER: The nonrecurring costs in the Fiscal Year 1984 Budget Line 8 are broken down as follows:

First Article Test/Production Verification	$9.179
Aircraft Maint/Government Test Support	1.302
Government Engineering Support	2.735
Aircraft Survivability Equipment Integration ALQ-162, ALQ-156, AVR-2	4.818
Total	$18.034

The nonrecurring costs in Fiscal Year 1985:

Production Verification Testing	2.745
Government Engineering Support	3.245
Government Test Support	1.123
Aircraft Survivability Equipment Integration ALQ-136	1.558
Total	$8.671

QUESTION: Based on your multi-year procurement exhibit No. 4, spare engines cost 5 percent less than engines procured for direct installation into airframes. Why is this? Why shouldn't the recurring costs of engines bought for installation and spare engines be the same?

ANSWER: Spare engines are procured less several removable components that because of their high cost, ease of removal, and significantly longer mean time between repairs (MTBRs) are separately procured. When an engine is replaced these items are removed from the defective engine and reinstalled on a spare engine. These items account for the difference between installed and spare engine prices.

QUESTION: Why is the cost element "changes allowance" for FY 1984 nearly twice as large as FY 1983 and larger than any other program year except for the first program year?

ANSWER: Change allowance, Engineering Change Proposals (ECPs) is programmed based on a sliding percentage of the

recurring hardware estimate. The rate of change is expected to be higher early in the production phase. For fiscal year 1985 and beyond, the relatively constant production rate and reduced costs as a result of learning curve effects cause the ECP estimate to decrease.

QUESTION: What would be the impact of a $20 million reduction in change allowance?

ANSWER: Changes are made for several reasons including taking action to correct design deficiencies, improve the production process, or increase the life of a component. In each case, changes are evaluated in great detail and each must demonstrate positive cost benefit before they are instituted. While it is program philosophy to hold change to a minimum, a reduction in funds of $20 million represents a 36 percent decrease and will severely limit the program managers flexibility to make sound business decisions.

QUESTION: Since support costs is essentially a level of program element, explain why support costs peak in FY 1984. Explain what this high level of effort will provide in FY 1984 and why that effort is needed in FY 1984?

ANSWER: The support cost category includes some items that tend to be time related rather than program related. Specifically, trainer hardware, production support and data are significantly front loaded. The trainer hardware is time-phased to establish the training base in support of initial operational capability and recurring training needs. Data costs include high cost items such as technical manuals, training courses, computer software documentation and engineering drawing updates that are essentially nonrecurring. A key element of Product Support is First Article Testing that is scheduled during fiscal year 1984. The single largest item in the fiscal year 1984 Support Cost is Ground Support Equipment, includes the automatic test equipment (ATE) and maintenance equipment required by the units being fielded. These items, and the training base support items are for initial fielding of AH64 units.

QUESTION: The non-recurring costs for Fiscal Year 1983 and Fiscal Year 1984 are $75.3 million and $57.7 million respectively. What will these funds provide?

ANSWER: The Fiscal Year 1983 and 1984 funding for non-recurring costs essentially completes procurement of the rate tooling required to achieve the planned production rate of 12 aircraft per month for all prime and sub-contractors.

QUESTION: Your 1984 Apache program seeks a $50 million increase above the 1983 program to a level of $123.6 million for management and engineering services. This is four times the projected request for 1985. Why in the third year of high rate production are such high levels of management engineering services required?

ANSWER: Management/engineering services for the fiscal year 1982 and fiscal year 1983 effort were funded for an annual period of performance. Commencing with the fiscal year 1984 contracts, the Army intends to fund these services for the full period of performance through delivery of all aircraft in July 1986. This

accounts for the significant increase between fiscal year 1983 and fiscal year 1984. The majority of management/engineering services occurs during the build up to rate production. After rate production is achieved in fiscal year 1984, those services reduce to a sustaining level.

QUESTION: What would be the impact of holding the 1984 funding for management and engineering services to the 1983 funding level of $70 million?

ANSWER: In the event fiscal year 1984 funding for management/engineering services were held to the fiscal year 1983 level, it would become necessary to continue the funding of program services on an annual rather than a full period of performance basis.

QUESTION: With respect to AH-64 advance procurement, last year the Committee provided $113.7 million as advance procurement for 96 aircraft in 1984. Your 1984 request is now for 112 aircraft. Are there sufficient long lead items to support 112 aircraft in 1984?

ANSWER: Yes. The development of the fiscal year 1984 budget for 112 aircraft included an analysis of the requirements for advanced procurement. Because lead times have shortened, there are sufficient funds available to support the increased buy. The remainder of the yearly budgets have been adjusted to reflect those relative up-front savings.

QUESTION: What would be the impact on the Apache program if you are required to fully fund all of your proposed 1984 advance procurement for 144 aircraft build in 1985? What would be the impact of reducing the proposed 1984 build back to 96 aircraft?

ANSWER: Fully funding fiscal year 1984 advance procurement for 144 aircraft in fiscal year 1985 would require an additional $54 million. Reducing the buy to 96 would permit fully funded advance procurement if that were required. That would force the Army to stretch the procurement to a less than economic rate, and cost growth would result.

QUESTION: It appears that the Army has increased the Apache program to 515 aircraft by using the management reserve for procurement of additional airframes. How will the Army fund for any future cost growth?

ANSWER: The Army increased the total buy of AH-64s by restructuring the program, and applying the management reserve. That decision was based upon the results of the successful fiscal year 1982 negotiations. The recent successfully completed fiscal year 1983 negotiations give additional confidence in that decision. At this time, there are no problems which would lead to cost growth above funds appropriated. Each of the production contracts are fixed price, and include a ceiling price above which the government has no further liability. In the event that funds are required to cover an unforeseen contingency, the Army can evaluate the option of reprogramming from lower priority systems. Rigorous cost control measures are in place which signal the program manager in the event of problems, and allow him to take timely management action.

BLN 16--CH-47

QUESTION: Does the proposed multiyear CH-47D contract obligate the Army to purchase 60 CH-47D's in fiscal year 1986 and 1987 or is the quantity still to be determined?

ANSWER: No. However the ramp up to economic order quantity of aircraft is completed during the multiyear contract period and the next contract period (Fiscal Year 1986 and beyond) is planned for 60 aircraft per year. The currently negotiated contract protects the follow-on procurement quantity since it buys long lead time items to support acquisition of 60 aircraft per year in Fiscal Year 1986 and Fiscal Year 1987.

QUESTION: As the advanced procurement is termination liability funded, what is the impact on FY 1986 funding for these long lead items if less than 60 aircraft are funded?

ANSWER: A portion of the Fiscal Year 1986 funding would be obligated to support termination liability which is due for payment in 1986. If funding in 1986 is reduced, then the numbers of aircraft procured would have to be reduced to fit the funds available after termination liability is obligated.

An expensive and undesirable alternative is for the government to exercise unilateral cancellation of a portion of the long lead time items. This would result in an eventual unit procurement cost growth.

QUESTION: You are requesting $64.8 milion for the Advanced Helicopter Improvement Program modification line tooling. What will this money buy specifically and what rate of production will this tooling support? Why was that rate of production selected?

ANSWER: The Army has selected the most efficient production rate of ten aircraft per month which is consistent with funds available, given Army requirements for a balanced modification program. Funding for tooling in FY 84 to achieve this production rate is a contractual requirement to preserve the not-to-exceed prices for the first two years of production. The FY 84 nonrecurring funds will be utilized to procure the airframe, control display system, mast mounted sight and government furnished communication/navigation manufacturing tooling required to meet the established production rate.

QUESTION: What lower annual rates of production were considered and why can they not be adopted?

ANSWER: The Army has not adopted a lower production rate because the 10 aircraft per month is an efficient rate, is affordable, and provides for AHIP deployment to priority units consistent with overall Army Force Modernization requirements. In addition, the production of 16 aircraft in FY 84 and 44 aircraft in FY 85 are the basis of the not-to-exceed prices contained in the production options. Failure to procure these quantities would invalidate the not-to-exceed prices already negotiated for the aircraft. Lower maximum production rates would extend procurement well into the 1990's and result in a substantial increase in total program costs. For example, a lower annual build up rate of 5 aircraft per month thru FY 87; 6 per month thru FY 88; 10 per month in FY 90 and 14 per month in FY 91 would add approximately $75 million to the current program in inflation alone.

QUESTION: From last year's estimate of the 1984 budget, there has been a 10 percent increase in the 1984 AHIP request. Explain what has caused this 10 percent cost growth and what is being done to further control other cost growth.

ANSWER: In FY 83 the Army requested $45.1 million for procurement of long lead items and tooling. This request was reduced to $28.7 million by the Congress because $16.4 million could be obligated as late as February 1984 without serious impact on program schedule and without forfeiting the not-to-exceed production prices already negotiated for FY 1984 and FY 1985 production quantities. This deferral required the Army to increase the FY 84 request from $160.1 million to $176.5 million to insure program continuity and retain the not-to-exceed production prices. The additional $0.5 million that brings the FY 1984 request to $177 million results from minor changes in inflation indices. This deferral of funding from FY 83 to FY 84 resulted in no increase in total production costs, and cost control measures for AHIP remain effective. These measures include a Fixed Price Incentive contract for Full Scale Engineering Development; not-to-exceed prices for the first two production years for 16 and 44 aircraft respectively; rigorous configuration management to avoid changing requirements and add ons, and detailed design to unit production cost analysis. In addition, the not-to-exceed ceiling prices have influenced contractors to pay more attention to production costs during the early stages of the program which should enhance the Army's position in the third year and subsequent production contract awards.

QUESTION: What are the FPI target and ceiling prices for the first and second production options to the FSED contract displayed by airframe, engine and mission equipment?

ANSWER: The initial production contract is planned as a fixed price incentive contract, but it will not be negotiated until mid 1984. The current engineering development contract does contain not-to-exceed prices for the first year production of 16 aircraft and the second year production of 44 aircraft. The actual target and ceiling prices for the first production award will be negotiated with the remainder of the contract in mid 1984. The Army expects to negotiate target and ceiling prices below the established not-to-exceed ceiling cap. The engines which will be Government furnished equipment during production will be procured under a firm fixed price contract, which has no target and ceiling prices.

QUESTION: How much would be saved if the OH-58A peculiar parts obtained from inventory aircraft for the OH-58D were taken directly from a production line.

ANSWER: This approach would result in a significant cost growth due to the fact that the largest component of the OH-58A used in this modification program is the airframe. New airframes and associated components would cost an estimated $.5M per unit more than the maintenance and preparation of existing airframes and components thereby resulting in an estimated cost increase of 250 to 300 million dollars over the life of the program. In addition to the basic airframe, there are costs associated with the start up of an airframe production line and the numerous parts that must be added to the new airframe. For example, the

current costs associated with a sampling of these parts are as follows: Doors, 4 ea -$7,312; Vertical fin - $1,988; tail boom - $5,020, Armor Side Panel -$1,478.

BLN 27 - Aircraft Spares and Repair Parts

QUESTION: What is the impact of either a $100 million or $150 million reduction in the spares and repair parts line?

ANSWER: Included in the Fiscal Year 1984 budget is a $115.3 million catchup to cover prior year unfunded. A cut of $100 million or $150 million would continue or increase the unfunded carry-over, impacting on the flying hour program (FHP) and/or combat readiness. The FHP has already been reduced to the minimum acceptable level for maintaining safe pilot proficiency. Maximum utilization has also been programed for the flight simulators, precluding additional offsets. Therefore, associated Operations and Maintenance costs will also remain constant. The result is combat readiness would decline, reducing the Army's ability to respond to contingencies. It is not possible to provide a specific number of flying hours or percentage of readiness associated with a cut. Estimates for replenishment spares are based upon demand by component item from user units and not by weapon system. The Army has begun to develop the means to capture the replenishment requirement by weapon system. This data will be available by 1985 for the Fiscal Year 1987 President's Budget. Army implementation within this time frame has been directed in the Fiscal Year 1984 Defense Guidance.

QUESTION: Why have you included user equipment for NAVSTAR-GPS and the Position Location Reporting System as a separate line in the aircraft procurement account when those particular programs have heretofore been funded in the OPA budget activity 2?

ANSWER: NAVSTAR-GPS and the Position Location Reporting System (PLRS) have always had a separate line in the aircraft procurement account for aircraft peculiar components. A unique aircraft set will exist for GPS and is totally funded in APA. A common PLRS basic user unit, for both ground and air, is funded in OPA-2, while aircraft unique installation kits and pilot control display panels are funded in APA.

QUESTION: $8.6 million was reprogrammed onto a composite avionic support line for the purchase of Position Location Reporting System equipment. What are the sources of funds for this reprogramming?

ANSWER: Sources are:

BLN		
13	OV-1 Mods	1.6
17	AH-1 Mods	1.4
20	C-12 Mods	.2
22	OH-58 Mods	1.8
26	Avionics Mods	1.3
30	Avionics Support Equipment	1.0
33	War Consumables	1.3
		8.6

QUESTION: Funds are being requested for (UH-60, AH-64, and CH-47) helicopter simulators. Annually, how many hours is each

aviator required to log in these simulators and how many hours of flight time is this equal to for each aviator?

ANSWER: Active and Reserve Component (RC) rotary wing aviators (primary aircraft) must use the Synthetic Flight Training System (SFTS), if available. Utilization requirements are based upon distance the aviator must travel to the SFTS.

Annual utilization requirements are as follows:

Active component aviators. (Distance expressed is from the aviator's station of assignment.)

0-25SM-20 hours.

26-100SM-12 hours.

101-200SM-6 hours.

201SM and over-No mandatory hour requirement.

Reserve Component aviators. (Distance expressed from aviator's flight facility to the SFTS facility.)

0-100SM-12 hours.

101-200SM-6 hours.

201SM and over-No mandatory requirement.

Each hour of simulator time is equivalent to one hour of actual aircraft flight time.

QUESTION: For the different types of aircraft simulators currently in use outside of flight school, how many hours per month on the average are these simulators being used? What percent utilization is this?

ANSWER: There are two types of simulators currently in use outside of flight school. The UH-1 and the CH-47. On the average, each UH-1 simulator which has four separate cockpit training stations is flown an average of 531 hours per month. This reflects an 83% usage rate. The first CH-47 simulators were fielded in 1982. They have a single cockpit training station and are each averaging 173 hours per month for a 79% utilization rate.

QUESTION: For the 1983 and 1984 proposed simulator purchases, identify the necessary military construction by site and the status of funding for this military construction.

ANSWER: Military construction by site and funding status is provided below:

FY	Type Simulator	Location	MCA Year	Amount $M	Status
83	One CH-47	Ft. Lewis, WA	84	$3.1	Budgeted
83	One AH-1	Ft. Campbell, KY	83	$2.9	Funded
83	One AH-1	Illesheim, GE	83	$2.4	Funded
83	One AH-1	Ft. Lewis, WA	84	$3.0	Budgeted
83	AH-64CMS (RDTE)	Ft. Rucker, AL	84	$2.6	Budgeted
84	One CH-47	Korea	85	$3.7	In POM
84	One AH-1	Ft. Rucker, AL	85	$3.5	In POM
84	Two UH-60	Ft. Campbell, KY	84	$6.0	Budgeted
84	One UH-60*	Hanau, GE	82	$4.0	Funded

*Multi simulator structure, will house UH-1 simulator already fielded, and AH-1 flight simulator procured in FY 82

QUESTION: The common ground equipment line has increased from your 1983 budget submission to the 1984 budget submission some $76.3 million. This is a 75 percent increase. What has been accelerated? What is being bought in 1984 which was not previously planned or budgeted for. Why?

ANSWER: The flight simulator for the AH-64 helicopter has been accelerated to more closely coincide with the actual aircraft fielding. No other components within the common ground equipment line have been accelerated. A comparison of the FY 1984 request as submitted in the FY 1983 budget is provided as a comparison with the actual FY 1984 budget request. Changes other than the AH-64 Combat Mission Simulator reflect programmatic decisions made after the formal FY 1983 request had been submitted.

FY 1984 Column of FY 1983 Request		FY 1984 Request	
Sets, Kits Outfits	11.4	SKO	5.8
Ground Support Equipment	15.4	GSE	14.9
3 UH-60 Flight Simulator	52.9	3 UH-60 FS	46.3
1 CH-47 Flight Simulator	14.9	1 CH-47*	34.2
Items <900K	5.4	Items <900K	5.2
TOTAL	100.0	1 AH-1 FS**	32.6
		Long lead for AH-64 CMS	28.9
		Aviation Training Equipment	8.4
			176.3
		Change	76.3

* Includes conversion of 3 CH-47C Flight Simulators to CH-47D configuration.
** Includes long lead procurement of 2 AH-1 FS to be purchased in FY 1985.

QUESTION: Provide a detailed breakout of the $14.3 million requested for rehabilitating real property and industrial plant equipment for the Stratford, Connecticut Army Engine Plant. Specify, where possible, those expenditures required to support aircraft engines and those expenditures supporting production of the AGT-1500 for the M-1 tank.

ANSWER: The Fiscal Year 1984 Aircraft Procurement Army (APA) request for Provisioning of Industrial Facilities is $14.3 million. Only $5.3 million of that total is for the Stratford Army Engine Plant (SAEP) rehabilitation. Because this plant supports the T-55 and T-53 series of aircraft engines as well as the AGT-1500 M-1 tank engine, total SAEP funding is shared between the Aircraft and Wheeled and Tracked Combat Vehicle (WTCV) appropriations. In the FY 1984 request, there is a total of $8.3 million for SAEP rehabilitation, Project Number 7848174. $5.3 million is the APA request and the remaining $3.0 million is WTCV.

A breakout of the $8.3 million is provided below:

Upgrade of Chemical Waste Treatment Project	$3.4
Electrical Control and Second Voltage System	1.2
Inside Roof Repairs	.2
Industrial Plant Equipment Rehabilitation*	3.5
	$8.3

*Includes over 60 individual items of plant equipment such as grinders, milling machines, presses, lathes, furnaces and finishers.

QUESTION: Specify what the $4.5 million facilitization program at Corpus Christi, Texas for the CH-47D program will buy. When is the first CH-47D expected to be input to Corpus? How much of this newly established capability is duplicative of capability at Boeing's Pennsylvania facility?

ANSWER: Fiscal Year 1984 funding will procure long lead time items to modify forward and aft transmission test cells at Corpus Christi Army Depot. Tooling jigs and fixtures for those test cells will also be procured. There has been no other significant modification of transmission test cells since introduction of the CH-47A in 1962. The CH-47D uses entirely new and different transmissions. Fiscal Year 1985 funding will procure modification items for engine mechanical transmission and combiner transmission test cells and the balance of tooling and fixtures.

Aircraft components which are common to other models of the CH-47 currently have depot repair support available. The first CH-47D peculiar components will be inducted at Corpus Christi in December 1984. These will be items such as, rotor heads and swash plates which do not require extensive tooling at the depot. Boeing-Vertol will continue to provide depot maintenance support using production facilities until maximum plant capacity is reached in 1988. At that time, a complete organic depot capability will be achieved.

Yes. The Government has duplicative production equipment for transmission test and overhaul at Boeing-Vertol. This equipment and tooling is necessary to be used to support depot maintenance requirements until an organic capability is fully achieved at Corpus Christi.

QUESTION: How much money is being invested for TOW Cobra maintenance at Anniston, Alabama? What type of maintenance activity will be accomplished at Anniston?

ANSWER: In Fiscal Year 1984 $1.2 million is being invested for TOW COBRA maintenance at Anniston, Alabama. This project provides for the necessary additional handling fixtures, tools and jigs for update to the Multiple Purpose Optic Bench and test equipment required by Anniston Army depot to support the M65 TOW Missile System used on the AH-1 Attack Helicopter. This activity at Anniston supports a total system check-out and depot repair of the TOW COBRA fleet.

QUESTION: For your Manufacturing Methods and Technology (MMT) line, describe what goals or objectives you expect to achieve for the investment of $3 million with Hughes Helicopter and $1.5 million with Avco Lycoming. For Avco Lycoming, please specify how much of this effort will go to aircraft and to tank engines.

ANSWER: For both Manufacturing Methods and Technology (MMT) programs with Hughes Helicopter ($3.0 million) and Avco Lycoming ($1.5 million), the following are the goals and objectives expected to be obtained for the investment. An incentive contractual plan will be arranged to help the contractors invest the major share of the needed capital. This capital will be used for plant modernization and automation planning, computer-aided manufacturing system planning, improved production planning and control, improved material handling and inventory control planning and modern management-information systems. The entire manufacturing facility will be studied to evaluate the manufacturing and management methods and systems. The problem areas and the bottleneck conditions will be recognized. Then the modernization will be implemented as required, to achieve the goals of reduced procurement cost, increased productivity and timely delivery.

The savings, return on investment and capital recovery period due to a complete Industrial Productivity Improvement (IPI) program are projected to approximate the results achieved by the Air Force

on the F-16 TECH-MOD cooperative program with General Dynamics. Both aircraft and tank engines will receive equal benefits from this project at Avco Lycoming.

QUESTION: For the entry "projects under $900,000", identify the three top corporate claimants for this MMT money.

ANSWER: For entry projects under $900,000, prospective contractors have not been selected. These projects will have to be contracted in accordance with the Defense Acquisition Regulations.

Manufacturing Methods and Technology

Question. Why hasn't this MMT money been budgeted for within the R&D appropriation as directed by Congress last year.

Answer. RDTE appropriation funding of the Army's Manufacturing Methods and Technology and Military Adaptation of Commercial Items (MMT/MACI) programs was a result of the FY 1983 Appropriations Act which deleted all MMT/MACI funding ($120.0 million) from the procurement appropriations and provided a total of $50.0 million in the RDTE appropriation for this purpose. This action was a result of the mark-up of the FY 1983 Defense Appropriations Bill by the Defense Subcommittee of the House Appropriations Committee, which deleted all MMT/MACI funding.

The action is inconsistent with the findings of the House Appropriations Committee Surveys and Investigations Staff Report of March 1980. Furthermore, the very similar Navy and Air Force MMT programs were and continue to be procurement funded, as the Army's MMT program had been in FY 1982. The issue of whether the MMT Program should be funded from RDTE or procurement appropriations is a longstanding issue which formed the basis for the Surveys and Investigations Report noted above. The basis for continuing funding MMT under procurement appropriations is as follows:

1. The Congressional Survey and Investigations Staff report, previously noted, states: "The Investigative Staff believes under the present funding arrangements there is less likelihood that MMT-type efforts will be undertaken indiscriminately or randomly because production funding mandates that these efforts be tied to a target procurement. One of the clearest advantages of continuing to fund the MMT program with procurement money is that it forces the manufacturing segment to participate in the design and development of the manufacturing process and encourages MMT program managers to be responsive in taking the lead in the acquisition forces in the production/procurement system."
2. MMT is a production-oriented program directly supporting the industrial base.
3. MMT is "return on investment" oriented and investments are directly linked to known system procurements.
4. MMT exploits techniques demonstrated to be feasible on a laboratory basis, but which have not yet been reduced to an economical production process.
5. By showing a first case, factory-floor application, MMT projects reduce the fiscal and technical risks of follow-on implementation of the same technology on the production line with private sector funds.

MISSILE PROCUREMENT, ARMY

PATRIOT MISSILE SYSTEM

QUESTION: For both fire units and missiles, display actual deliveries by month for calendar years 1982 and 1983 to date. Also indicate how much these monthly deliveries are ahead or behind of the projected recovery schedule as forecast by Raytheon last year.

ANSWER: Monthly deliveries of fire units and missiles are six and three and a half months behind schedule, respectively. Management actions have been taken to recover to contract schedule by January 1984 for fire units and June 1984 for the missile. Current operating trends indicate high probability of achieving recovery as planned. The following table displays contract schedules, Raytheon projected deliveries, and actual deliveries for fire units and missiles.

TABLE

	1982												1983						
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
Fire Units																			
Contract	1		1		1		1		1		1		1		1		1		1
Raytheon Projection March 1982				1	1	1	1		1										
Actuals as of 31 March 1983						1			1		1			1	1				
Missiles																			
Contract	5	8	11	12	13	13	6	12	12	12	12	6	13	12	12	12	14	14	6
Raytheon Projection March 1982	1	2	9	12	11	11	13	13	14	14	14	9	12	12	12				
Actuals	1	2	11	2	1	7	3	8	7	10	8	12	12	13	12				

QUESTION: What is the problem in getting and achieving adequate levels of production?

ANSWER: Substantial progress has been shown in achieving and sustaining the throughput rates required to recover to the original contract schedule in both the Missile and Ground areas. Reasons have been identified for the late delivery of production end items and are as follows:

a. Nonavailability of critical Initial Production Facility test equipment.
b. Producibility problems.
c. Late receipt of vendor material.
d. Late staffing of manufacturing areas.
e. Longer test cycle of major hardware.

Corrective actions have been initiated in the above areas to preclude the continued shortfall of hardware. These actions are discussed in the following paragraphs:

a. Nonavailability of Critical Initial Production Facility Test Equipment. Workaround test procedures and Engineering Development test equipment were utilized on-line to support production. Nonavailability of prove-out hardware necessitated the use of first production hardware which contributed to the delay of critical Initial Production Facility capability. Presently, five types of test equipment continue to require workarounds, with three types currently scheduled on-line by 31 May 1983. Parallel testing has been implemented in order to alleviate production bottlenecks until the test stations are completely on-line.

b. Producibility Problems. The initial build of production hardware resulted in the identification of problems associated with large volume production. As a result, active producibility changes were investigated. These producibility enhancements have been identified, qualified, and will be implemented in the second production buy.

c. Late Receipt of Vendor Material. The late receipt of vendor material, both at the component and subassembly levels contributed to late delivery. This was the result of production "start-up" problems being experienced by the vendors. The fiscal year 1981 and fiscal year 1982 production buys have shown substantial progress in material deliveries.

d. Late Staffing of Manufacturing Areas. A late start in hardware production builds was experienced due to delayed staffing in major manufacturing areas. This was compounded by late facility actions, late receipt of vendor material, and difficulty in finding adequately skilled personnel. Presently, the labor force is stable with a more consistent flow of production hardware through the manufacturing areas.

e. Longer Test Cycles of Major Hardware. The major end items experienced a longer test cycle than originally estimated. This was compounded by nonavailability of Initial Production Facility test equipment, hardware shortfalls, and producibility problems. Present planning utilizes experienced throughput cycles as a basis for more realistic forecasting of hardware deliveries. It is fully on-line and producibility enhancements have been completely implemented.

At the present time, virtually all critical subassembly areas have achieved sustained production rates required to support the planned Government recovery schedule. The two areas of exception (Radar Exciter and Identification Friend or Foe elements) are presently implementing parallel testing, producibility analysis, and additional staffing to support production requirements. This methodology was utilized in the missile forebody area and has proven to be a successful approach.

Patriot Air Defense System

QUESTION: What steps is the Army taking to control the apparent and continuing cost growth in the Patriot program?

ANSWER: The Army is currently reviewing in detail the total Patriot program cost estimates. An initial examination of these updated cost estimates indicates that the 15 fire units and 525 missiles planned for fiscal year 1984 can be procured for the $992.0 million requested. This review also indicated that there is a potential cost growth of about 2 percent in the Patriot procurement program. Intensive management actions have already been initiated both by the Army and Raytheon, Patriot prime contractor, to prevent further cost growth and in fact reduce the total cost of the Patriot

program. These actions include a negotiated cost reduction goal achievement program, breakout of major component subcontracts to introduce competition, qualification of second-source vendors, using fixed price type contracts in fiscal years 1983 and 1984, and consideration of multiyear procurement starting in fiscal year 1985. Additional cost savings are anticipated from foreign military sales of Patriot which may begin as early as fiscal year 1984.

PATRIOT MISSILE SYSTEM

QUESTION: The 1983 production facilitation contract will be completed by June 1985, enabling a monthly production rate of 60 missiles. In the following 24 to 25 months only 1,211 missiles are scheduled to be produced. This averages 48 missiles per month, some 20 percent below maximum production capacity. Why can not the production between June 1985, and June 1987, be held to less than 60 per month so that the 1984 production facilitation contract can be delayed one year at a savings of some $41.8 million?

ANSWER: The fiscal year 1983 production facilitation contract awarded will not provide a monthly production rate of 60 missiles. The facilitation contract awarded will be completed by June 1985 and will establish a capability of producing 45 missiles per month. It is further noted that five (5) percent of this production rate capability is reserved for logistical support for repairing damaged missiles returned to the prime contractor facilities from the field. Restructuring the Patriot Production Program to achieve a production rate capability of 48 missiles per month beginning in June 1985, is not feasible due to the following reasons:

a. Currently the scheduled production rate is planned to deliver 25 missiles in May 1985. This rate cannot be increased by 92 percent to yield a delivery of 48 missiles the next month. This increased production rate must be accomplished in incremental steps to provide adequate time for the prime contractor and vendors to develop manpower and material resources required to support the increased rate. Therefore, it is not feasible to achieve a missile production rate capable of delivering 48 missiles per month beginning in June 1985.

b. To achieve a production rate capable of delivering missiles at a rate equal to or greater than 48 missiles per month beginning in June 1986, additional tooling and test equipment must be procured with a fiscal year 1984 production facilitation contract. It is further noted that in the event the fiscal year 1984 production facilitation contract is not awarded as currently scheduled, the Patriot Production Program would be extended a minimum of one (1) additional year past the current program plan.

QUESTION: Why has total initial spares funding been reduced $90.1 million?

ANSWER: The reduction in total initial spares funding is a result of guidance furnished to the Missile Command by the Office of the Deputy Chief of Staff for Logistics (Army) to reflect requirements for initial provisioning spares through fiscal year 1986 only. Patriot initial spares were erroneously programed through fiscal year 1987. Several months ago, Department of the Army directed a transition to replenishment spares in fiscal year 1987 resulting in a $90.1 million decrease in Patriot initial spares requirements. The reduction was reported in the Patriot December 1982, Selected Acquisition Report.

QUESTION: Why has it been accelerated to end in fiscal year 1986 when production schedules appear to be stretching out?

ANSWER: The Patriot Initial Operational Capability (IOC) in Europe is planned for the third quarter of fiscal year 1984. Initial spares are procured for two years beyond system Initial Operational Capability. Requirements for spares beyond fiscal year 1986 are funded as replenishment spares.

QUESTION: What would be the impact of a $35.0 million reduction in initial spares in fiscal year 1984?

ANSWER: The fiscal year 1984 initial spares estimate of $135.2 million is based on the procurement of 15 fire units in fiscal year 1984. A reduction of $35 million in fiscal year 1984 would result in about 25 percent of these units being deployed in fiscal year 1986 without any spares or a 25 percent reduction in the required initial spares for each unit. In either case, an unacceptable level of operational availability would result for these units.

STINGER

QUESTION: Why is your current 1984 request some $120.5 million and 1,785 missiles less than the quantities projected in your 1983 budget submit?

ANSWER: Funds were taken from the Stinger program for other higher priority programs.

QUESTION: Provide a schedule of actual deliveries for calendar 1982 and calendar 1983 to date.

ANSWER:

1982	Number of Missiles	
January	220	
February	220	
March	223	
April	220	
May	190	(Total 1499 missiles)
June	237	
July	189	
August	0	
September	0	
October	0	No production due to eject-only problem
November	0	
December	0	
1983		
January	220	
February	276	
March	259	(Total 755 missiles)

Total missiles for 1982 through March 1983 is 2254.

QUESTION: What quantities of Stinger POSTs can be procured under the 1984 option to the 1983 POST contract? What are the maximum and is the minimum?

ANSWER: The previous plan for inclusion of an option for the fiscal year 1984 Stinger POST buy has been altered. Current planning is to omit the fiscal year 1984 option and negotiate a

separate fiscal year 1984 contract for 515 missiles with funds available.

QUESTION: What are the differences in unit costs between the missile (less seeker) for the basic Stinger and the Stinger POST?
ANSWER: The unit costs are the same for the Basic Stinger and Stinger POST Missile less seeker.

QUESTION: What is the correct recurring unit cost for the missile less seeker for both of these applications?
ANSWER: $34,987 - Including manufacturing support cost. The manufacturing support cost is prorated to the missile less seeker hardware cost based on the percent the missile less seeker hardware cost is to total missile hardware cost.

QUESTION: Detail what the $15.6 million for tool and test equipment will buy in 1984. What production rates will this support?
ANSWER: Items of test equipment (TE) to be procured are as follows:

ITEM	QTY
Guidance Section Tester	2
Infrared Calibration Set	1
Optical Alignment Set	1
Gyro Test Set	1
Optical Test Set	2
Hybrid Module Assembly (HMA) Test Set	2
Electronics Test	1

Tooling fabrication will cost an estimated $3.2 million.
Test equipment planned for fiscal year 1983 plus the items listed above will provide the capability to deliver at a rate of 300 units per month on a 1-8-5 shift basis with 400 units per month possible with selected second shift testing.

QUESTION: Will your 1984 request cover all of the non-recurring programatic costs for the Department of Defense wide Stinger program? If not, how will these additional costs be funded?
ANSWER: No. The Marine Corps will pay a prorata share based on their share of total production.

QUESTION: Did the January 26, 1983, Special ASARC on POST production approve Low Rate Initial Production (LRIP)? If not, why not? When is initiation of Low Rate Initial Production now expected?
ANSWER: A final decision has not been made. However, current planning calls for a Stinger POST Low Rate Initial Production (LRIP) contract in the September 1983 timeframe.

QUESTION: Why is "Initial Hardware Availability" now estimated for February 1987?
ANSWER: This date is based upon hardware being available in the sixth month of the second (fiscal year 1984) buy. The "Initial Hardware Availability" date has slipped from January 1987, to February 1987, due to a projected one-month delay in awarding the initial production contract.

QUESTION: What did the Army decide during its January, 1983, in progress review (IPR) with respect to integrating the product improvement program into the production line?

ANSWER: A final decision was not made during the January, 1983, review. The funding requirements to incorporate product improvements are currently under review.

QUESTION: What success have you had in increasing yields on micro electronic chips and printed circuit boards for the Stinger missile? Please provide previous and current yield rates to substantiate progress.

ANSWER: Two areas of yield have been identified as production uncertainty issues. The ultra-violet detector fabrication has been under intensive review and yields have been increased from two percent in Engineering Development to 5.4 percent yield in late 1982. The program in progress to resolve this issue will achieve the 12 percent required to meet full-scale production rates.

The second yield issue relates to the Hybrid Module Assemblies (HMAs), which is based on uncertainty about the reliability level of components in the assemblies. The position taken by the Army is that the component reliability levels should be equivalent to experience on the Navy STANDARD Missile which is manufactured in the same facility. This issue will not be fully resolved until production hardware components are obtained after implementation of the production manufacturing system controls.

Hybrid Module Assemblies yields are projected to average 59 percent in production. The yield projected from Engineering Development data is 38.1 percent. The improvement from production controls and processes is expected to achieve the required production yields.

QUESTION: Based on current yield rates, what rate of US and FMS deliveries of the Stinger POST can be supported?

ANSWER: Based on our sensitivity analysis of the yields, the impact on unit production rate is minimal. The impact is experienced in the additional testing on the Hybrid Module Assembly test set which can be resolved through one additional test set or selected second shift testing. At this time the rate capability of 300 to 400 units per month projected at the end of the fiscal year 1984 contract is attainable. Rates for greater quantities are based on fabricating sufficient test equipment and tooling to support procurement planning. The numbers of each test set will be adjusted in future planning based on experience from initial contracts.

QUESTION: Will 1984 Stinger POST seekers be produced on production tooling? If not, why not? Is 1984 production part of the Army production proofing program?

ANSWER: Yes, 1984 Stinger POST seeker production will be on production tooling. No, proofing will be accomplished in the fiscal year 1983 contract.

HELLFIRE

QUESTION: Why was the 1984 budget request decreased below the quantities indicated in your 1983 budget submit?

ANSWER: Quantities in the FY 84 budget request were adjusted to eliminate annual increases and decreases in

quantities identified in the FY 83 budget. The FY 84 budget reflects an orderly increase in quantities with a maximum rate of 548/month being attained as a part of the FY 84 procurement. Once the maximum monthly rate is attained, the budget request maintains this rate for all remaining years.

LASER HELLFIRE

QUESTION: What would be the impact of holding the engineering support funding levels in 1984 to the 1983 levels?

ANSWER: The increase in FY 84 engineering support funds is due to increased effort in two areas. The first is implementation of all-up-round (AUR) procurement. AUR procurement requires both contractors to perform technical and cost evaluations of all engineering change proposals against both the missile and seeker. Previously each contractor performed these efforts only on the hardware for which he was responsible (Rockwell International on the missile and Martin Marietta on the seeker). The second area of increased effort is the initiation of missile flight testing as a part of the first article and fly before deployment test programs. Flight testing was not a part of the FY 83 engineering support effort. Decrementing the FY 84 engineering support funds to the FY 83 level would preclude the necessary effort for AUR procurement and production missile flight testing.

QUESTION: Explain/justify the 6576 increase in missile quantity; how will they be allocated? How will the additional 294 launchers be used?

ANSWER: At ASARC III it was recognized that missile quantities contained in the then current POM were not adequate to support the Army's needs. ASARC III directed that additional quantities be added each year until quantities were adequate to satisfy the Army's requirements. With the current planned AH-64 procurement the missile requirement is well over 45,000 missiles. HELLFIRE procurement through Fiscal Year 89 under the above annual addition policy will be 42,332 missiles. The majority of the 6576 increase will be deployed, with 186 used for fly-before buy and periodic environmental tests.

The additional launchers will be used to support the increase in AH-64 aircraft from 446 to 515.

QUESTION: You are requesting some $18.7 million in 1984 for something called "other procurement support." Please specify and justify what these $18.7 million are for. What would be the programatic impact of delaying these expenditures till 1985?

ANSWER: Other procurement support for FY 84 is contract support for the missile, seeker, and warhead. The $18.7 million is extracted from the Baseline Cost Estimate as follows:

Missile Bus	(9.348)
1. Cost of Competition	9.115
2. Government Warranty Parts	.233
Seeker	(9.333)
1. Cost of Competition	9.115
2. Government Warranty Parts	.218
Warhead	(.012)
Government Warranty Parts	.012

Cost of competition is the payback to both contractors for cost of technology transfer, tool and test equipment, and capital equipment accumulated during FY 83 in preparation for the dual source program in accordance with Memorandums of Agreement (MOA) and the all-up-round competition program starting in FY 84. These expenditures cannot be delayed until FY 85 because it would be a violation of current MOAs and FY 83 contract provisions. However, it is the contractors option to bid or not bid these costs in FY 84 in order to win the competition.

Government warranty parts cover rework or replacement of any defective part or overhaul of any unserviceable item, provided ownership of the item has been vested in the Army for not more than 60 days (in accordance with AR 700-127). Cost is computed on 0.003 x total manufacturing + Engineering Change Order cost.

QUESTION: If the Army COPPERHEAD program is terminated, how much will the HELLFIRE Seeker costs increase per unit?

ANSWER: There will be no increase in costs since all pricing was done on basis of a zero COPPERHEAD program.

QUESTION: When will Rockwell produce its first Seeker? What problems have been encountered to date in establishing Rockwell as a second source for the Seeker?

ANSWER: Rockwell must produce nine first article seekers, independent of Martin, by September 1984 under the FY 83 production contract. Rockwell will also produce thirteen seekers to be used for tooling/test equipment proofing, and fabricate seven all-up-rounds as a part of technology transfer. The thirteen technology transfer seekers will be produced by Rockwell from components and subassemblies provided by Martin and with Martin assistance.

Problems encountered to date in establishing Rockwell as a second source have been routine; such as, resistance to the all-up-round competition in FY 1984 vice FY 1985 and to developing their own sources for seeker parts. So far, these types of problems have all been favorably resolved.

QUESTION: For the FY 1982 and FY 1983 contracts, what were the actual negotiated recurring unit costs for the Hellfire Seekers? What kind of a savings assumptions were made for the use of competition on the Seeker and missile procurement starting in 1984?

ANSWER: The FY 1982 actual negotiated recurring unit cost for the HELLFIRE Seekers is $35,096.44. This cost is per contract DAAH01-82-C-A170 dated 25 Feb 82. The FY 1983 contract has not completed negotiation at this time.

Under the Dual Source Program, the split between the two contractors will be based on competitive bids for all-up-rounds beginning with the FY 84 procurement. The low bidder will receive up to 60 percent of the total quantity in FY 84 and up to 75 percent in FY 85 and subsequent years. The exact split will be based on the best price to the Government for the total buy over a range of bids.

The price break due to competition is estimated to result in a learning curve parallel to the sole source estimate, but approximately 20 percent lower. The 20 percent factor is based on the difference between the FY 82 production contracts at target price versus ceiling price. We have every reason to

believe that target price represents a reasonable cost for the HELLFIRE system and that, in a competitive environment, the contractors will assume the risk dollars in the ceiling price. In FY 82, the ceiling price is 17.4 percent greater than target price An additional 5.0 percent price break is considered reasonable due to the effects of competition (increased productivity, more efficient management, subcontractor second sourcing, etc.)

The total price reduction, however, is significantly less than 20 percent. For a 50/50 split, each producer is only half as far down the learning curve as he would be in a sole source environment. In addition, each producer is further up the curve for the new part of the system (Seeker - Rockwell International Corporation, Missile Bus - Martin-Marietta Corporation).

TOW

QUESTION: Will the advanced procurement money requested in fiscal year 1984 and fiscal year 1985 be used for anything other than establishing the surge capability? If so, what and when?

ANSWER: The advanced procurement funds requested in fiscal year 1984 and fiscal year 1985 will only be used to establish the TOW surge capability.

QUESTION: Why is advanced procurement needed or justified for the fiscal year 1988 lot and no other lot?

ANSWER: There is no advanced procurement requested for the fiscal year 1988 TOW 2 missile buy.

QUESTION: What will be delivered and when if the TOW advanced procurement funds are provided?

ANSWER: The funds identified for advanced procurement will establish a surge capability for TOW 2 missiles of 3500 per month. The following items will be delivered with the fiscal year 1984 funds:

ITEM	QUANTITY	FIRST DELIVERY
Contractor Furnished		
TOW 2 Unique	6300	December 1984
Common	6300	December 1984
Government Furnished		
Warhead	4200	June 1984
Launch Motor	6300	September 1984
Facilitization		
Contractor	NA	April 1985
Government	NA	October 1984

QUESTION: Is this materiel fully funded or termination liability funded?

ANSWER: The materiel is fully funded.

QUESTION: Can the proposed multiyear procurement be executed without the advance procurement funds for fiscal year 1988? If so, how much would projected savings decrease?

ANSWER: The multiyear procurement can be executed without the surge implementation. The decrease in savings would be negligible.

QUESTION: Will the proposed multiyear procurement buy out the TOW program? If so, will the TOW line be laid away? How will the line be kept warm? Wouldn't it make more sense to stretch out the procurement to support the production base?

ANSWER: The proposed multiyear procurement will not buy out the TOW 2 program. Current plans are for the TOW 2 missile procurement objective to be achieved with the fiscal year 1989 buy. Stretching out the procurement of TOW 2 missiles would only serve to increase the overall program cost and delay the time it takes to achieve the procurement objective. Support of the production base beyond the last year of Army procurement will be addressed in terms of both United States requirements and potential foreign military sales.

QUESTION: What is the impact on the proposed fiscal year 1984 total procurement program if the proposed advanced procurement/surge request were denied?

ANSWER: Denial of the funds requested for surge capability will limit the production of TOW 2 missiles to 2500 per month. The capability to increase production to 3500 per month within six months of go ahead will not be available.

QUESTION: Explain why the projected fiscal year 1985 unit fly away increases above both the fiscal year 1983 and fiscal year 1984 unit fly away costs.

ANSWER: The projected fly away costs for TOW 2 missiles are as follows:

Fiscal Year 1983 - $9950
Fiscal Year 1984 - $9904
Fiscal Year 1985 - $10411

The unit fly away cost decreased from fiscal year 1983 to fiscal year 1984 primarily due to the quantity increase to 18000 missiles per year. The increase in unit fly away cost from fiscal year 1984 to fiscal year 1985 is a result of inflation. Any decrease in unit fly away cost due to learning will be negligible because fiscal year 1985 will be the fifth year of procurement of the TOW 2 missile.

QUESTION: How many new launchers are being purchased in fiscal year 1984 and fiscal year 1985? How many dollars in initial spares are required to support these items?

ANSWER: The number of new TOW 2 launchers to be purchased in fiscal year 1984 and fiscal year 1985 is 155 and 101, respectively. There are no initial spares funds specifically for these items.

QUESTION: Of the $12.9 million requested for initial spares, how much of this is associated with the advanced procurement for the surge capability? If none, why is $12.9 million required in 1984 compared to the lower quantities in fiscal years 1982, 1983, and 1985?

ANSWER: None of the $12.9 million requested for initial spares is associated with the advanced procurement for the surge capability. The $12.9 million for spares in 1984 is required to support the peak deployment of TOW 2 in 1984 and 1985.

QUESTION: Describe the contact support set and improved contact support sets being procured for Anniston Army Depot. What are they used for?

ANSWER: The contact support set and improved contact support set will be used Army wide to provide on-site field maintenance for the TOW, DRAGON, the AN/TAS-4, 5, and 6 night sight and TOW related equipment on the Improved TOW vehicle and the Bradley Fighting Vehicle. The contact support set is composed of a S-250 maintenance shelter mounted on a 5/4-ton truck and contains a work bench, storage cabinets, test equipment, tools, repair parts, and other repair related equipment. The improved contact support set is composed of a larger shelter mounted on a 2½-ton truck towing a 15 kilowatt generator. It has more work space, storage space for repair parts, and a controlled environment for replacing critical missile parts. The improved contact support set has special test equipment and night sight repair equipment that the contact support set does not have. The improved contact support set is not intended to replace the contact support set but to supplement it on the basis of one per brigade supported. A Missile Maintenance Support Element deploys from the Missile Maintenance Company to the brigade trains area with an improved contact support set, and number (based on missile system density) of missile support teams equipped with contact support sets. The improved contact support set in the brigade area serves as control center and primary repair facility for missile systems and night sights. The missile support teams operate from the improved contact support set to the battalion field trains or the battalion combat trains as required.

PERSHING II

QUESTION: Your fiscal year 1984 budget submit assumes adequate funding in a fiscal year 1983 supplemental for Pershing. Please provide some rough indications of how much the 1984 and 1985 program must be increased if the 1983 supplemental is less than requested or if it comes in late in the year.

ANSWER: If supplemental funding is not received by 15 May 1983, the Army will be forced to terminate the fiscal year 1983 Pershing production contract. This will cause a restructuring of the balance of the program. This restructured program would increase the fiscal year 1984 and fiscal year 1985 program requirements by approximately $100 million and $150 million respectively and reduce by 40 the quantity of missiles procured in fiscal year 1984. The cost increase is primarily due to the break in production and postponement by one year of the breakout of subcontracted hardware. If a fiscal year 1983 supplemental is approved that is less than requested, a partial termination will most likely be required to descope the fiscal year 1983 contract. Without knowing the timing and the exact level of a less than requested supplemental amount, it is not possible to determine an impact to the fiscal year 1984 and fiscal year 1985 programs.

QUESTION: What would be the impact on the 1984 program if the 1983 supplemental were denied or significantly delayed?

ANSWER: The Army cannot afford to continue the Pershing II fiscal year 1983 production contract beyond 15 May 1983. Therefore, either denial of the supplemental request or a significant delay in its approval will necessitate contract termination. This would

result in a restructured program that would increase the fiscal year 1984 program financial requirements by approximately $100 million while reducing, by 40 missiles, the quantity of missiles that could be procured in fiscal year 1984.

QUESTION: The Committee understands that the 1983 Pershing contract will be terminated on or about May 15 if the fiscal year 1983 supplemental is not approved by then. Assuming that the supplemental is approved by July 1, sketch out what the adjusted fiscal year 1983 and fiscal year 1984 program would look like.

ANSWER: If the fiscal year 1983 supplemental request is not approved by 15 May 1983, other important Army missile programs will suffer serious damage. Therefore, without the approval of the supplemental request the fiscal year 1983 contract will be terminated. Once this occurs it will be impossible to execute a new contract until fiscal year 1984. Therefore, the adjusted fiscal year 1983 program would be approximately $150 million to cover the fiscal year 1983 contractual liabilities and termination costs. The fiscal year 1984 program would increase by approximately $100 million while at the same time reducing, by approximately 40 missiles, the procurement quantity. The fiscal year 1985 program would necessarily increase by approximately $150 million and full operational capability would be delayed by approximately a year and a half.

QUESTION: When do you expect to make the first two stage over land test flight?

ANSWER: The leading candidate for solving the second stage impact problem that has prevented long-range over-land flights has not satisfied the test range's safety concerns. In order to make that solution viable, additional safety area would have to be leased by White Sands Missile Range. This is normally a six month process with no assurance of obtaining the leases. One last candidate is now being evaluated. Without a fix for this non-tactical problem, it will not be possible to fly the two-stage missile over land. The Engineering Development flight test program is being executed on the assumption that there will be no two-stage over-land flights. The test plan alternates long-range, two-stage flights over water, to demonstrate dynamic performance, with single-stage, short-range flights against land targets to verify radar correlator performance and system accuracy. This program is the technical equivalent of the original program and its execution to date has demonstrated missile system performance over the entire flight envelope.

We do not consider it operationally or technically necessary to conduct two-stage flights against land targets, although it would obviously be a confirmation, without any restrictions, of the results gained in the current test program and all the subsystem testing.

QUESTION: Prepare a table showing the 1982 and 1983 Pershing II test flights to date to include remarks column detailing problems and successes.

ANSWER: The requested table is provided below:

PERSHING II TEST FLIGHTS

FLT NO.	DATE	CONFIGURATION	LAUNCH SITE	RANGE	RESULTS	REMARKS
1	22 Jul 82	Two Stage	AFETR	Long	Failed 14 Sec. into flight.	Corrective Action - Improved process control and tooling. No design changes required. Fix demonstrated on all subsequent flights.
2	19 Nov 82	Two Stage	WSMR	Short	Successful; Primary objectives achieved. 2nd stage impact problem occurred. RV hydraulic system failure.	Corrective Action - Second Stage impact problem (non-tactical) still being evaluated. RV hydraulic system failure resolved by minor design changes. Demonstrated on all subsequent flights.
3	21 Jan 83	Two Stage	AFETR	Long	Successful; Primary and Secondary objectives achieved.	
4	9 Feb 83	Two Stage	AFETR	Max.	Successful; Primary and Secondary objectives achieved.	
5	26 Feb 83	Single Stage	WSMR	Short	Successful; Primary and Secondary objectives achieved. RV impact within required accuracy.	Single stage missile performance also demonstrated.
6	13 Mar 83	Single Stage	WSMR	Short	Successful; Primary and Secondary objectives achieved. Anomaly (No warhead func-	Corrective Action - Cause of warhead problem identified as blockage in exhaust system on AK generators. New

3

PERSHING II TEST FLIGHTS

FLT NO.	DATE	CONFIGURATION	LAUNCH SITE	RANGE	RESULTS	REMARKS
					tioning) occurred. RV impact within required accuracy.	inspection/ checkout procedures instituted to prevent recurrence of problem.
7	28 Mar 83	Two Stage	AFETR	Long	Successful meeting all objectives. Two anomalies occurred-stuck reaction control valve and loss of Magnetron output during flight.	System was robust enough to overcome anomalies and achieve flight objectives.

QUESTION: What events must occur before the Pershing II ASARC III/DSARC III will be rescheduled?

ANSWER: A special Army System Acquisition Review Council review of the Pershing II program is scheduled for 9 May 1983. Future Defense System Acquisition Review Council activities will be determined after this meeting.

QUESTION: Is there a fiscal year 1984 option available on the fiscal year 1982 production contract? If so, what are the terms and quantities?

ANSWER: No. The initial (fiscal year 1982) contract awarded to the prime contractor contained an option only for the subsequent year's buy (fiscal year 1983).

QUESTION: If the ASARC III/DSARC III full scale production approval is not provided, under what basis or authority can the Army increase production?

ANSWER: Department of Defense guidance to the Army has consistently specified a December 1983, Initial Operational Capability and a December 1985, Full Operational Capability for Pershing II. In order to meet these dates, the Department of Defense authorized the Army to begin full-scale production of the Pershing II system in June 1982. Production activities have continued since the award of the initial contract in June 1982. The fiscal year 1983 and fiscal year 1984 President's budget requested production funds for increasing numbers of Pershing II missiles and were necessarily approved by the Department of Defense. Of course, if the Army System Acquisition Review Council/Defense System Acquisition Review Council III production continuation reviews

determine that production activities should be halted or altered, the Army will certainly comply with such direction.

Budget Line 11/12 Multiple Launch Rocket System

QUESTION: Provide updated copies of Exhibit 2 and 3 of the MLRS multiyear justification material from last year's justification book reflecting the results of the actual multiyear contract.

ANSWER: Negotiation of the Multiple Launch Rocket System (MLRS) multiyear contract will not be concluded until multiyear contract award in July-August 1983. Actual data to update last year's justification book Exhibits 2 and 3 will not be available until that time.

QUESTION: What is the impact of not executing the sixth year option on the MLRS contract until FY 1985?

ANSWER: The cost impact of not executing the economic order quantity (EOQ) option for fiscal year 1988 procurement (sixth year) until fiscal year 1985 is estimated to be at least $20 million and potentially as high as $60 million. Such a delay would immediately impact multiyear contract negotiations as the contractor would have to rebid the contract, delaying contract award to as late as October 1983 (fiscal year 1984). Disruption of production line operations would also result, with delayed delivery of hardware to support system fielding.

QUESTION: Provide a table highlighting scheduled deliveries compared to actual deliveries for fiscal year 1982 and fiscal year 1983 to date for tactical rockets and SPLLs.

ANSWER: The following table reflects required and actual deliveries of production tactical rockets and Self-Propelled Launcher Loaders (SPLLs) during fiscal years 1982 and 1983 to date:

	Rockets		SPLLs	
	Required	Actual	Required	Actual
FY 1982				
1st Quarter	0	0	0	0
2nd Quarter	0	0	0	0
3rd Quarter	120	192	0	0
4th Quarter	588	576	7	7
FY 1983				
1st Quarter	870	942	13	12
2nd Quarter	720	726	12	10

QUESTION: The congressional data sheets for the Multiple Launch Rocket System (page 106) notes that the reductions between fiscal year 1983 and fiscal year 1984 were due in part to scope of engineering support. However, the P-12 exhibits indicate that fiscal year 1984 funding increased from $19.8 to $36.6 million and that fiscal year 1983 funding increased from $12.7 to $29.6 million for engineering support. Please explain; why are these increases necessary for a program that is in full-scale high rate production?

ANSWER: Multiple Launch Rocket System production is undergoing incremental build-up to the full-scale rate of 6000 rockets/month. It will be facilitized to this capability by fiscal year 1985, with deliveries at this rate starting in fiscal year 1987.

Multiple Launch Rocket System is transitioning from Research, Development, Testing, and Evaluation to procurement funding for engineering support starting with the second quarter of fiscal year

1983; procurement funding requirements for this support for nine months in fiscal year 1983 and 12 months in fiscal year 1984 are consistent and do not reflect an increase.

Engineering support requirements have increased significantly since the fiscal years 1983 to 1984 estimates were submitted last year. These increases result from an underestimation of the funding required and the failure to properly reflect the transition of engineering support from Research, Development, Testing, and Evaluation to procurement funding. Also, about 20 percent of the fiscal year 1984 Budget requirement in fiscal years 1983 and 1984 could have been more appropriately reflected in hardware lines (primarily support of the fly-to-buy program), but was included in the engineering support category for consistency with the Multiple Launch Rocket System Baseline Cost Estimate. The Congressional Data Sheet reference to an engineering support reduction applies to an adjustment during the budget development process within the Department of Defense.

The requested engineering support funds reflect the minimum requirement necessary to adequately support the production rate build-up, and to resolve emergent problems as the system is initially fielded starting in mid-1983. The engineering support must be capable of rapidly responding to any related problems so that discrepancies can be readily incorporated into existing production hardware to preclude costly retrofit programs. In addition, engineering and related changes based upon recent testing must be incorporated into production hardware.

Question: With respect to your P22 exhibit, explain the difference between the cost elements labeled Escalation and Economic Price Adjustments.

Answer: Escalation is the yearly increase in price, with respect to a base year, of the LAV-25 vehicles based on DOD indices. The Economic Price Adjustment (EPA) line represents the differential between the DOD calculated inflation and that calculated from the EPA factors predicted for this contract.

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QUESTION: In preparation of the FY84 budget, what assumptions were made about the economic price adjustment indicator and what are the current status and projections for that indicator in 1984?

ANSWER: Estimates for fiscal year 1984 Economic Price Adjustment Indicators were made using an assumption that inflation growth would be 2.5 percent over the projected Department of Defense (DOD) rate. Based on current economic conditions, we would now base this indicator on an assumption of one-half percent to one percent growth over the DOD rates.

WEAPONS AND TRACKED COMBAT VEHICLES
PROCUREMENT, ARMY

M113 FAMILY OF VEHICLES

QUESTION: In light of the proliferation of antitank weapons, increasingly larger caliber weapons on threat vehicles, and the reportedly poor performance of thin-skinned/lightly armored personnel carriers in the recent Israeli-Lebanon war, what is the justifica-

tion for continued procurement of the 113 family of vehicles?

ANSWER: We have no evidence from the recont Israeli-Lebanon conflict that would discredit the performance of the M113 in roles for which it was designed. The M113 was not designed to defeat threat direct fire heavy antitank weapons. The addition of armor to the vehicle is not the solution. The design for survivability of fighting vehicles, armored personnel carriers, tanks, or any other combat vehicle is a compromise solution based on trade-off of a number of factors, foremost of which are firepower, agility (speed), and armor protection. Overemphasis of one at the expense of the others will ultimately result in failed equipment that cannot perform in battle, and that will be easily defeated by measures specifically designed to defeat it, or result in our inability to deploy it rapidly because of excess weight. The key to survivability of any combat vehicle is proper tactical employment to minimize vulnerability, e.g., cover and concealment, "standoff engagements," dispersions, fire suppression, frequent displacement and appropriate deployment of dismounted mechanized infantry.

For the United States Army, the need for additional M113 series equipment is related to the need to protect our own personnel and specialized equipment from a variety of probable threats such as small arms fire and indirect artillery fires. The Bradley Fighting Vehicle will selectively replace M113s and ITVs in active and high priority reserve component units; however lower priority reserve component units will retain M113s and ITVs in infantry carrier roles. M113s and ITVs are also required in modernized units; M113s serving in command/control and combat support roles; ITVs as dedicated antitank systems. Significant additional requirements exist for other M113 series vehicles for use as guided missile carriers, air defense weapon carriers, mortar carriers, armored command post vehicles, combat engineer squad carriers, medical evacuation vehicles, fire support team vehicles, etc.

BRADLEY FIGHTING VEHICLE SYSTEMS

QUESTION: Are there any plans to increase the size of the Bradley fighting vehicle program?

ANSWER: The Bradley Fighting Vehicles have an Army Acquisition Objective (AAO) of 16,636 vehicles. Based upon threat analysis, force structure, requirements, and the total obligational authority, the Army reviews annually the number of systems which will be bought in the initial issue objective (IIO). That number (IIO) was determined in 1979 to be 6882 vehicles of the 16,636 objective. That figure has not changed but is subject to review annually.

M113 FAMILY OF VEHICLES

QUESTION: Is the Army concerned about the survivability of the M113 family of vehicles on the modern battlefield? If so, what consideration is being given to establishment of a program for developing armor to enhance the survivability of 113s?

ANSWER: The Army is concerned about the survivability of the M113 family of vehicles as it is concerned with the survivability of all elements of the force. While applique armor would increase survivability of the M113 to some extent, it is not at present an affordable improvement. The Ballistics Research Laboratory is conducting a continuing research and development program for

improvement of armor materials and means of application to combat vehicles. There is not, however, a program specifically addressed to up-armoring the M113. The Army Materials and Mechanics Research Laboratory at Watertown, MA, is engaged in an ongoing program to develop a kevlar spall liner for use in the M113 family of vehicles. This program appears to be more promising, in terms of survivability, than applique armor.

The survivability of the M113 ultimately hinges upon its tactical employment in battle. To this end, the most effective measure at hand to improve survivability of the M113 is to deploy the Bradley Fighting Vehicle and free the M113 for the numerous other uses on the battlefield for which its level of armor protection is adequate.

QUESTION: Briefly describe the employment differences between the M113 family of vehicles and the Bradley Fighting Vehicles.

ANSWER: Employment of M113s varies with the vehicles' roles. Until replaced by Bradleys (in high priority active component and Roundout NATO-oriented units) M113s and selected ITVs will be used as surrogate fighting vehicles. M113s and ITVs also will continue to be used in this role in non-NATO oriented and non-Roundout reserve component units, which are not planned to receive Bradleys. M113s and ITVs will continue to be used in Bradley-modernized units: M113s in command/control and combat support roles; ITVs as dedicated antitank systems.

Employment of Bradleys and M113s used as surrogate fighting vehicles is similar only in that both systems carry mechanized infantrymen and scouts into battle, protect occupants from battlefield hazards, and provide fire support for dismounted infantry. Since both are vulnerable to antitank munititions, use of Bradleys and M113s must emphasize cover and concealment, "standoff" engagements, dispersion, fire suppressions, frequent displacement and appropriate employment of dismounted mechanized infantry.

Employment differences between Bradleys and M113s used as surrogate fighting vehicles emphasize the additional capabilities of the Bradley. Bradley's dramatically improved mobility, firepower and protection provide mechanized infantry, scouts, and cavalry a quantrum increase in capabilities over the M113 and ITV.

The Bradley supports, and is supported by, tanks, other Bradley Fighting Vehicles, and dismounted infantry with long range TOW, 25mm cannon, and machinegun fire preferably operating from covered and concealed overwatch positions. In the cavalry role the Bradley Fighting Vehicle will continue to perform reconnaissance, security, and limited combat missions.

The M113 family of vehicles performs numerous missions to the rear of the forward edge of the battle area (FEBA). To the extent that M113s are still used as Armored Personnel Carriers in infantry maneuver units, the M113 serves almost exclusively as a troop transport, not a fighting vehicle. The M113 is not capable of adding effective supporting fires during an engagement other than limited suppressive fires from its .50 cal. heavy machinegun. However ITVs can provide effective long range antitank fires.

In its other combat and combat support roles the M113 family provides the weapon carrier and firing platform for the TOW heavy antitank guided missile system Improved Tow Vehicle (ITV), Lance, Chaparral, Vulcan Air Defense System, Fire Support Team Vehicle (FISTV), and both the 81mm and 4.2-inch mortars. All of these vehicles except ITV and FISTV are designed to be employed from positions largely protected from hostile direct fire and antiarmor weapons.

The M113 family provides necessary armor protection for units, personnel, and equipment in a variety of other combat support functions. The M577 carrier is used as an armored command post and operations center vehicle in armor, infantry, artillery and other units, and at brigade and high headquarters. It is also used as the fire direction center for artillery cannon, guided missile, rocket, and air defense systems. The M113 carrier is used in numerous roles such as medical evacuation vehicle, transport for combat engineer squads, direct support maintenance vehicle, smoke platoon vehicle, NBC reconnaissance vehicle, and for other utility purposes. The M548 cargo carrier serve primarily as an ammunition resupply vehicle for artillery and armor units, and as a tracked carrier for general cargo.

QUESTION: On what basis will the "Contractor Incentive" be awarded in the FPI contracts for the M113 and M577?

ANSWER: Incentives will be based on cost. Share ratios are negotiable, and in the past have varied somewhat from year to year. In the fiscal year 1982 contract, share provisions called for 90/10 contractor-to-Government cost sharing on the first $500,000 over target cost, and 85/15 sharing on cost increases beyond $500,000 over target. It is expected that similar provisions will be used for the fiscal year 1984 contract, depending on the economic climate and the perceived risks at the time of award. Both vehicles will be included in the same contract.

QUESTION: With reference to the February 15 "P-22" exhibits submitted with your budget justification materials, explain the differences in costs of items common to the M577A2 and the M113A2 such as the engine, transmission, miscellaneous ECO's, and the various engineering and quality assurance charges.

ANSWER: The cost breakdown furnished this year for these items was the total for each element cost for the entire quantity of each vehicle. Unit costs are identical for items that are common to both vehicles. Items such as the radio harness, which are not common to both, are appropriately costed to account for the item differences.

BRADLEY FIGHTING VEHICLE

QUESTION: For calendar years 1982-1983 to date what have been the actual deliveries of Bradley Fighting Vehicles (M2 and M3)?

ANSWER: In 1982, 143 M2s and 100 M3s were delivered. To date in calendar year 1983, 78 M2s and 71 M3s have been delivered. Total Bradley deliveries through 31 March 1983 are 231 M2s and 171 M3s.

QUESTION: Provide new P22 and P22A exhibits which breakout the production costs reflecting the basic vehicle and the major components provided as government-furnished materials to the prime.

ANSWER: The requested exhibits are attached:

REPORTS CONTROL SYMBOL DD - COMP(AR) 1092	PROGRAM COST BREAKDOWN	DATE 19 April 1983
APPROPRIATION/BUDGET ACTIVITY: WEAPONS & TRACKED COMBAT VEHICLES, ARMY	P-1 ITEM NOMENCLATURE: BRADLEY FIGHTING VEHICLES (G80702)(MYP)	

(TOTAL COST IN THOUSANDS OF DOLLARS)

ELEMENT OF COST	IDENT CODE	FY 82		FY 83		FY 84		FY 85	
		QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST	QTY	TOTAL COST
Basic Vehicle (FMC)	A	600	$ 560,600	600	$ 300,100	600	$ 298,000	830	$ 384,140
TOW (HAC)			0		139,200		142,800		212,480
Transmission (GE)			0		51,600		42,600		69,720
Turret Drive System (GE)			0		48,000		41,940		64,740
Engine (Cummins)			14,400		15,600		15,600		23,240
Track			7,200		10,200		10,200		14,940
Other GFE			11,400		15,000		12,600		18,260
Repair GFE			0		0		600		830
ECO			63,600		60,000		36,000		49,800
Contingent Liability			40,800		0		0		0
Cost Reduction/VE			8,400		10,200		0		0
Special Tools			3,600		0		0		0
Mob Planning			600		0		0		0
Special Tooling			0		0		26,400		14,110
Peculiar Spt Equip			45,000		54,000		78,000		60,590
Engineering-Contractor			30,600		59,400		46,200		39,840
Engineering-Government			5,400		6,600		13,200		4,150
Govt Test & Evaluation			6,000		42,000		2,400		1,660
Total Cost			797,600		774,100		766,000		958,500

RESOURCE CONTROL SYMBOL
DD-C&E(AR) 1092

PROCUREMENT HISTORY & PLANNING

DATE
3 FEB 83

Appropriation/Budget Activity
WEAPONS & TRACKED COMBAT VEHICLES, ARMY

P-1 ITEM NOMENCLATURE
BRADLEY FIGHTING VEHICLES (GB0702) (MYP)

LINE ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE/OPTION	CONTRACTED BY	P/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	TDP AVAIL NOW	TDP REVISIONS REQUIRED	IF YES, WHEN AVAILABLE
	Basic Vehicle										
82	FMC	SS/FPI	TACOM	Feb 81	Nov 81 1/	May 83	600	934	Yes	Yes	Oct 81
83	FMC	SS/FPI	TACOM	Dec 81	Nov 82 1/	May 84	600	500	Yes	Yes	Oct 82
84	FMC	SS/FFP	TACOM	Dec 82	Oct 83	May 85	600	497	Yes	Yes	Oct 83
85	FMC	SS/FFP	TACOM	Dec 83	Oct 84	May 86	830	463	Yes	Yes	Oct 84
	TSS										
83	Hughes Aircraft	SS/FP(EPA)M	ARRCOM	Mar 82	Nov 82	Feb 84	600	232	No 2/	N/A	
84	Hughes Aircraft	SS/FP(EPA)M	ARRCOM	Mar 83	Nov 83	Feb 85	600	238	No 2/	N/A	
85	Hughes Aircraft	SS/FP(EPA)	ARRCOM	Dec 83	Nov 84	Feb 86	830	256	Yes	No	
	Turret Drive Sys										
83	General Electric	SS/FP(EPA)M	ARRCOM	Mar 82	Nov 82	Feb 84	600	80	Yes	No	
84	General Electric	SS/FP(EPA)M	ARRCOM	Mar 83	Nov 83	Feb 85	600	69	Yes	No	

REMARKS: 1/ Award of a Basic Ordering Agreement (BOA) delivery order to allow contractor to order materiel.

2/ Level 3 package not available; procurement based on Form 3 drawings with contractor system responsibility.

REPORTS CONTROL SYMBOL
DD-COMP(AR) 1092

PROCUREMENT HISTORY & PLANNING

DATE
3 FEB 83

Appropriation/Budget Activity
WEAPONS & TRACKED COMBAT VEHICLES, ARMY

P-1 ITEM NOMENCLATURE
BRADLEY FIGHTING VEHICLES (GB0702)

LINE ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE/OPTION	CONTRACTED BY	F/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	TDP AVAIL NOW	TDP REVISIONS REQUIRED	IF YES, WHEN AVAIL-ABLE
	Turret Drive Sys (Cont)										
85	General Electric	SS/FP(EPA)	ARRCOM	Mar 84	Nov 84	Feb 86	830	78	Yes	No	
	Transmission										
83	General Electric	SS/FP(EPA)M	TACOM	Apr 82	Nov 82	Feb 84	600	86	Yes	No	
84	General Electric	SS/FP(EPA)M	TACOM	Mar 83	Nov 83	Feb 85	600	71	Yes	No	
85	General Electric	SS/FP(EPA)M	TACOM	Mar 84	Nov 84	Feb 86	830	84	Yes	No	
	Engines										
82	Cummins	SS/FP(EPA)	TACOM	Apr 81	Aug 82	Dec 82	600	24	Yes	No	
83	Cummins	SS/FP(EPA)	TACOM	May 82	Nov 82	Feb 83	600	26	Yes	No	
84	Cummins	SS/FP(EPA)	TACOM	Mar 83	Nov 83	Feb 84	600	26	Yes	No	
85	Cummins	SS/FP(EPA)	TACOM	Mar 84	Nov 84	Feb 85	830	28	Yes	No	

REMARKS:

REPORTS CONTROL SYMBOL
DD-COMP(AR)_1092

PROCUREMENT HISTORY & PLANNING

DATE
3 FEB 83

Appropriation/Budget Activity
WEAPONS & TRACKED COMBAT VEHICLES, ARMY

P-1 ITEM NOMENCLATURE
BRADLEY FIGHTING VEHICLES (BBO/M2)

LEAD ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE/OPTION	CONTRACTED BY	D/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	TDP AVAIL. NOW	TDP REVISION REQUIRED	IF YES, WHEN AVAILABLE
	Track										
82	Goodyear	Comp/FFP	TACOM	Apr 81	Jun 82	Dec 82	600	12	Yes	No	
83	Unknown	Comp/FFP	TACOM	Apr 82	Jun 83	Feb 83	600	17	Yes	No	
84	Unknown	Comp/FFP	TACOM	Apr 83	Jun 84	Feb 84	600	17	Yes	No	
85	Unknown	Comp/FFP	TACOM	Apr 84	Jun 85	Feb 85	830	18	Yes	No	

REMARKS.

BRADLEY FIGHTING VEHICLES

QUESTION: What assumptions were made about approval of your proposed FY 1983 multi-year procurement of components in the preparation of your FY 1984 budget submission?

ANSWER: The basic assumptions were that (1) multi-years would be approved for the components (TOW subsystem, Power Control Unit, transmission, and turret drive) and (2) that this approval would be made by mid-March 1983 to allow award by the end of March, 1983.

BUSHMASTER RAPID FIRE WEAPONS SYSTEMS (25MM)

QUESTION: $26.4 million is requested for special tooling. How much of this is for production rate tooling? What will the balance be used to buy?

ANSWER: All of the $26.4M is for production rate tooling.

BRADLEY FIGHTING VEHICLES

QUESTION: What is the production capacity for the Bradley fighting vehicle program today? What will it be as a result of the FY84 investments? What will it be as a result of the FY85 investments? When will each of these production capabilities be available for use?

ANSWER: The current production capacity is 50 vehicles per month; even after fiscal year 1984 investment the vehicle production capacity will remain at 50 vehicles per month since that investment will be used to tool-up General Electric to increase transmission and turret drive system production to 90 per month. GE requires 26-30 month tooling leadtime. As a result of the fiscal year 1985 investment vehicle production will permit surge to 90 vehicles per month. The 25mm gun production capacity will be 95 guns per month.

Budget Lines 6-Field Artillery Ammunition Support Vehicle

Question: Have negotiations been completed for the FAASV FY 1983 contract? If not, when will they be completed? If completed, what are the negotiated targets and ceilings for the vehicle in FY 1983 and for the FY 1984 and FY 1985 options thereto?

Answer: The Army plans to complete the negotiations for the FY 1983 FAASV contract by April 29, 1983.

Question: Are the options to the FY 1983 contract structured so that quantities less than shown in the justification materials can be procured without rewriting the contract?

Answer: The option for the FY 1984 buy is structured so that the Army can procure any quantity up to a quantity of 252.

Question: Why is so much engineering change money required for a vehicle that is essentially a non-developmental, off-the-shelf piece of equipment?

Answer: Although the FAASV uses components that are common, it should not be assumed to be a complete "off-the-shelf" vehicle. It is an assemblage of components of which many are common to the M109 and the military standard parts system. The FAASV has approximately 60% component commonality with the M109 and 20% with the military standard parts system.

The engineering change money is based on experience factors with the M109 and the military standard parts system. The

application of these factors produced the budget requirement for engineering change funding. Engineering change support for the FAASV includes such areas as: the hull, e.g., a two foot extension, the cargo compartment, e.g., conveyor system, hydraulic system and projectile racks; the automatic fire suppression system; the NBC ventilated face piece (VFP) and the Standard Test Equipment/ Internal Combustion Engine (STE/ICE) interface.

Question: What would be the impact of funding the FY 1984 program at the level proposed for FY 1984 in the FY 1983 budget submission?

Answer: The FY84 column of the FY 1983 budget submission provided for $73.7 million dollars for procurement of vehicles and $3.5 million dollars for spares. The $73.7 million dollars would procure 150 FAASV's in FY 1984, a reduction of 67 from the 217 FAASV's requested in the FY 1984 budget submission. This shortfall represents the delayed fielding of four battalions of FAASV's in Europe by one to two years.

Budget Line 7-M109A2 155mm Howitzer

Question: What is the forecasted production by month of M109 howitzers for the (FY 1983 and FY 1984 funded delivery period) for Army and FMS delivery?

Answer: M109A2 production, including both US and FMS, has been about 43 howitzer per month through April 1983. In May 1983, M109A2 production drops to about 20 howitzers a month and remains at that rate until about April 1984. According to current production forecasts, M109 production will terminate about April 1984.

There is no forecasted production for the FY 1983 funded delivery period. The FY 1984 funded delivery period is for calendar year 1986, for a total of 112 howitzers. The production forecast starts in April 1986 and is for 2, 7, 14, 18, 18, 18, 18, and 17 respectively per month through November 1986. As for FMS sales, there are no known signed Letter of Agreement's (LOA) for deliveries during the FY 1984 funded delivery period nor are there any known deliveries during what would be the normal funded delivery period if there was funding in
FY 1983.

Question: If there has been production of the M109 in that time period, why have you budgeted $2.5 million for start up costs of the M109 line again?

Answer: The current M109A2 production forecast is that M109A2 production, including both US and FMS, will terminate in April 1984.

There are other FMS cases pending, as well as a direct sale to Egypt, but even considering optimistic lead times for components such as engines, transmission cannon assemblies and gun mounts, there will be a break in the production of M109A2 howitzers. The $2.5 million dollars will be used to restart M109A2 production.

Question: Will any of the new production be distributed to the reserve components? If not, how will this new production be utilized?

Answer: The FY 1984 procurement of 112 M109A2 howitzers will go to reserve components.

QUESTION: For FY 1983, 1984 and 1985 Funded Delivery Periods, specify the number of M1 and M1E1s to be produced each year.

ANSWER:

YEAR	M1	M1E1
FY1983	855	-
FY1984	580	140
FY1985	128	592

QUESTION: Briefly describe and identify appropriate milestones associated with the tank engines second source program which is budgeted in 1983 and for which you seek 1984 funding.

ANSWER: Milestones associated with tank engines second source (AGT 1500 turbine engines) are:

Request For Proposal	-	8 Feb 83
Proposals Due	-	2 May 83
Negotiations Completed	-	20 Jun 83
Multiyear Procurement Congressional Notification	-	Jul 83
Contract Award	-	Aug 83
Engine First Delivery	-	Jan 86
Production at 30/month	-	Jan 87

AVCO LYCOMING STRATFORD DIVISION, 550 SOUTH MAIN ST., STRATFORD, CONNECTICUT 06497

AGT 1500 TURBINE · M1 · UPDATE

Vol. 2 No. 7 *Powerful Ideas at Work...* 2 May 1983

Another Tank Turbine Engine Durability Milestone Achieved

6000 Mile Simulation Completed in Record Time

On 27 April another AGT 1500 engine milestone was achieved with successful completion of the First Initial Production Test Endurance Run. This test conducted at the Avco Lycoming Stratford, Connecticut facility, using engine LE 86157, simulated a 6000 mile M1 Abrams tank operational mission. The test began on 8 April 1983 and by running an average of 20 hours a day was completed in record time virtually without incident. At the end of the test, engine power, fuel consumption, and oil consumption were analyzed. The engine, after the 6000 mile simulated mission, still met new engine acceptance test specification limits. It is in excellent condition and available for additional testing.

The AGT 1500 specification defines an Initial Production Test (IPT). Three random sample production engines are used. "Two engines shall be capable of completing 6000 miles of mission profile endurance testing..." and the third is used to validate other specification requirements. The test, just completed, is the first of the two endurance tests. The second test will be started in the near future.

The daily engine test log is reproduced below:

DATE*	ENDURANCE HRS TOTAL	ELAPSED HRS TOTAL	CYC COMP
4/7			
4/8		17.2	
4/11	61.1	78.6	49
4/12	76.48	94.0	62
4/13	97.21	114.73	78
4/14	114.25	132.3	92
4/15	132.3	150.4	107
4/18	185.0	203.5	150
4/19	198.1	219.7	159
4/20	217.5	241.1	176
4/21	238.7	263.3	193
4/22	259.0	283.3	210
4/25	316.6	340.9	256
4/26	337.1	361.4	273
4/27	357.8	382.4	290
4/27	361.4	386.3	293.1

*Reports are as of 0800 hours on dates indicated.

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DEC 14 1983
AND SECURITY REVIEW
DEPARTMENT OF DEFENSE

A periodic status report on the AGT 1500 turbine engine

Direct inquiries to:

Mr. A. J. Burrows
1025 Connecticut Ave. N.W.
Washington, D.C.
Telephone (202) 659-6840

Mr. L. P. Savenelli
550 South Main St.
Stratford, CT 06497
Telephone (203) 385-2753

Mr. J. Aamodt
30500 Van Dyke Suite 204
Warren, MI 48093
Telephone (313) 574-1020

AVCO LYCOMING STRATFORD DIVISION, 550 SOUTH MAIN ST., STRATFORD, CONNECTICUT 06497

AGT 1500 TURBINE · M1 · UPDATE

Vol. 2 No. 8 *Powerful Ideas at Work...* 9 May 1983

Multi-Year Procurement for the AGT 1500

In Addition to Cost Savings, Avco's Proposal Has Other Advantages

On Monday, May 2, 1983, Avco Corporation proposed a five year, *not to exceed*, price for 4,140 AGT 1500 tank turbine engines to be delivered in Government Fiscal Years 1985 through 1989. This proposal was in direct response to an Army Tank-Automotive Command request for a five year multi-year procurement proposal from Avco. The TACOM Contracting Officer, in requesting this multi-year procurement proposal from Avco, stated that if they determined it to be in the best interests of the AGT 1500 engine acquisition program, they would proceed toward an award of a multi-year contract for engines.

AGT 1500 turbine engine deliveries for the M1 Abrams Fourth Production Year are now well along. By April 30th, 1,285 engines have been built and delivered to the Army. Our engines are approaching a quarter million hours running time and the tanks have been driven one and one-half million miles in the few short years since the M1 Tank was fielded. Troop acceptance of the tank and its turbine engine has been excellent. A mature product in stabilized production is certainly an appropriate candidate for the cost savings inherent in a multi-year procurement by the Government.

Our not to exceed proposal, when compared with equivalent single year procurements, bears out these anticipated significant savings. Avco Corporation and its people, both as designer and developer of this innovative turbine engine *and* as American taxpayers, believe that the interests of all will be best served when Avco's proposal, responding to the Army's request, is implemented.

As evidence of Avco Lycoming's confidence in our ability to continue to produce a quality product on time and in sufficient quantity to meet the Army's requirements, Avco has proposed to the Government a number of additional cost saving ideas. These include:

- We will warrant our engines for one year. If our engine breaks and it is our fault, send it back to our Maintenance Operations Center and we will fix it at our cost.
- We will include a liquidated damages provision to protect the Army if we are late on our delivery schedules.
- We will continue our current program to assure the Army that we have the capability to surge to 150 engines/month in an emergency.
- Finally, we will apply both the warranty and liquidated damages to those engines delivered in the two years prior to the multi-year performance period.

Avco Corporation Management believes that our present performance and our future plans and commitments clearly demonstrate that the Army can rely on Avco with confidence.

In summary, we have told the Army that Avco is committed to the AGT 1500; that we will contract in the long term; that we will pay if we are late; that if our engine breaks, send it back and we will fix it at our cost; and that we will do whatever it takes to surge to 150 engines/month.

X CLEARED FOR OPEN PUBLICATION

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Mr. A. J. Burrows
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Washington, D.C.
Telephone (202) 659-8840

Mr. L. P. Savenelli
550 South Main St.
Stratford, CT 06497
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30500 Van Dyke Suite 204
Warren, MI 48093
Telephone (313) 574-1020

M1 ENGINE SECOND SOURCE

QUESTION: Are there any conditions under which the Army feels comfortable with stopping the engine second source program? If so, what are they?

ANSWER: No. The program is required to expand the mobilization base; to expand the technical expertise base; to enhance plant and work force dispersion; to increase delivery stability; and to create a basis for price competition. Conditions necessitating second source development are not amenable to immediate changes that could result in a recommendation to terminate second source development.

M1E1 Testing

QUESTION: What are the results to date of the M1E1 EDT-C, PQT-C and PQT-G testing? Briefly list the new components being tested, e.g., suspension system and final drive. How does the RAM-D data compare to the M1?

ANSWER: EDT-C (Engineering Design Test - Contractor). This test phase was run at Aberdeen Proving Ground from October 1982 through February 1983 utilizing three M1E1 Tanks (120-3, 120-4, and 120-5). These tanks were equipped with prototype NBC and gun turret drive (GTD) systems plus modified rotary shock absorbers and torsion bars. The durability tank (120-4) also had an interim version of the M1E1 transmission and final drive. These three test vehicles accumulated 4021 test miles and fired 965 main gun rounds. Areas tested included fire control, NBC, mobility and reliability.

PQT-C (Prototype Qualification Test - Contractor). This is a RAM-D evaluation at Aberdeen Proving Ground using three test tanks (120-7, 120-8, and 120-9) and running a modified OPMODE Summary (2000 miles and 130 rounds for each tank). This test started in January 1983 and will be completed by end of April 1983. These vehicles are equipped with the M1E1 suspension system and transmission/final drive. They do not have NBC or M1E1 GTD. To date, these three vehicles have accumulated 4987 test miles and fired 270 rounds.

PQT-G (Prototype Qualification Test - Government). This test phase will begin in June 1983. Test vehicles will all have M1E1 GTD, suspension, transmission, final drive and NBC. Some PQT-G subtests completed prior to this time include rate of fire testing, NBC microclimate control system tests, and 120mm ammunition robustness testing. Test results of the latest rate of fire test and the NBC microclimate control system test were satisfactory. While the robustness test demonstrated satisfactory ammunition durability, it revealed deficiencies in the ammunition racks. Action has been taken by General Dynamics (GD) to procure redesigned racks which will begin testing in August 1983.

The testing described above has served to highlight the following areas for particular attention during further testing.

- Reliable operation of the 120mm system to include firing and extraction.
- 120mm system hit probability.
- NBC/engine interaction at tactical idle.
- High pressure shock leakage.

The RAM-D requirements for the mature M1E1 are essentially the same as for the M1. There are lower requirements for gun tube, track and roadwheel life. It is projected that the M1E1 vehicle

will meet the requirements despite the fact that the M1E1 is three tons heavier, incorporates the NBC system and uses combustible case ammunition.

The M1E1 is still undergoing contractor tests and will not enter official government evaluation RAM-D tests until July 1983. Test data is being analyzed and tracked for corrective action status. Analysis of emerging data indicates that RAM-D performance is meeting expectations for this phase of the program.

M1 CONTRACTS

QUESTION: In light of the fact that the FY 1982 contract has just been definitized, what is the current estimated date for definitizing the FY 1983 basic vehicle contract?

ANSWER: The FY 1982 contract is not fully definitized. Definitization of a single contract for FY 1982 and FY 1983 tank production is planned for May 1983.

QUESTION: Is this estimate of May 1983 still reasonable? If not, what is your new estimate for definitizing the contract?

ANSWER: Definitization in May 1983 is reasonable based on negotiation progress.

M1 ADVANCED PROCUREMENT

QUESTION: The 1982 advanced procurement funding for 1983 procurement supported 721 vehicles. The 1983 funded procurement was for 855 vehicles. Is this FY 1983 program executable? If not, which long lead items are critically short?

ANSWER: The 1983 procurement for 855 vehicles is fully funded, and is executable. Long lead items have been ordered for the entire vehicle production quantity. There are no shortages. The difference of 134 sets (855-721) of long lead items was made up from within existing M1 resources. Fifty five sets were brought forward from previous fiscal year advance procurements where M1 production cuts resulted in excess sets of long lead items. The remaining 79 sets were then funded using regular procurement funds.

M1 PRODUCTION

QUESTION: Once the power train durability demonstration has been completed and the Congressionally mandated 60 per month production rate cap has been removed, does the Army plan to support a production program greater than 60 a month starting, for example, in FY 1985?

ANSWER: Once the production cap has been removed, the monthly production rate will increase so the FY 1983 buy of 855 tanks can be delivered in a normal 12 month funded delivery period to avoid a stretch-out of that buy. The FY84-FY88 program is for 720 vehicles per year (60/month) based on affordability constraints.

M1 ADVANCED PRODUCTION

QUESTION: If so, why has advanced funding only been requested for 720 vehicles in FY 1985?

ANSWER: The FY 1985 program is for 720 vehicles.

120MM AMMUNITION PROCUREMENT

QUESTION: By type of round, how much 120mm ammo should be in inventory before the M1E1 is deployed to the field? When will these levels be reached? When will the first M1E1 be delivered?

ANSWER: Initial production of the M1E1 is scheduled for August 1985. We will begin filling the training base in first and second quarters fiscal year 1986 and fielding tactical units in the third quarter, fiscal year 1986.

The current ammunition procurement program includes 26,000 training rounds (HEAT (XM831) and kinetic energy (XM865)) in fiscal year 1984 to support the training base fill and tactical unit transition training. The initial buy of 9,000 kinetic energy rounds (XM829) is also scheduled in fiscal year 1984 to support the initial fielding of tactical units. The initial buy is required in fiscal year 1984 due to the 16-18 month expected lead time. These rounds will be available before the first M1E1 is deployed to the field.

Future 120mm ammunition procurement is planned to provide sufficient quantities for tank combat loads and war reserve stockage levels. The quantities shown in the fiscal year 1984 Budget request are less than required but are the maximum number that can be produced within current projected funding.

Question: For the Escalation category, justify the 18% escalation factor used.

Answer: The 18% rate came from the OSD provided composite inflation indices for FY84 using FY83 as the base year. The 18% was erroneously used because the base year should have been FY82. Using FY82 as the base year, the composite rate for FY84 would have been 25.7%. That would have resulted in an estimated escalation of $22.1 million versus the $21 million actually projected for escalation plus EPA.

Question: What are the contractual requirements for escalation and economic price adjustment?

Answer: The contract states that adjustments under the Economic Price Adjustment (EPA) will be made based on 3 indexes: (1) iron and steel, (2) motor trucks (10,000 lbs gross vehicle weight and over), and (3) average hourly earning of production workers on manufacturing payrolls - durable goods. Contract price adjustments are limited to production vehicle prices from the 2nd thru the 5th program year (FY83-FY86) and prices will be subject to adjustment upward or downward based on a review of the 3 indexes. For example, for the second contract year (FY83), the adjustment period for each index will be done on a one time basis only and shall be the arithmetic average of the first available final index for the 16th, 17th and 18th month after contract award. The adjustments in the production vehicle prices for the second contract year shall not exceed 22.1% of the production vehicle prices.

FIST Vehicle Modification

Question: Provide background information on the producer of the North Seeking Gyro. Information desired includes present production capabilities and past production history for the North Seeking Gyro.

Answer: The Fire Support Team Vehicle (FISTV) North Seeking Gyrocompass (NSG) is manufactured by the Guidance Systems Division of Bendix Corporation at Teterboro, New Jersey and Boyne City, Michigan. Bendix has produced gyrocompasses for aircraft, missiles and ground combat vehicles since 1956. The FISTV NSG platform assembly is used by other systems to include the Multiple Launch Rocket System. Approximately 250 of these platforms have been produced. Bendix could produce up to 45 NSG per month.

M60A3 CONVERSIONS

QUESTION: If funds were available, what is the largest number of tank conversions that the Army could accomplish in the FY 1984 funded delivery period? What establishes that limit?

ANSWER: The Army could convert 720 M60A1 tanks to M60A3TTS tanks in the fiscal year 1984 funded delivery period. That limit is established based on the quantity of M60A1 tanks available for depot induction during fiscal year 1986, the year for applying fiscal year 1984 procured conversion kits.

SPARES AND REPAIR PARTS

Question: M1 program initial spares funding has decreased $105 million since last year. Last year, $53 million were programmed for 120mm block improvements. How much of the $145 requested in FY 84 is for 120mm block improvement?

Answer: The $145 million for initial spares in FY 84 are for the M1 tank. Unique spares for the M1E1 will be procured as replenishment spares for the M1/M1E1 tank system beginning in FY 85.

Question: If none, how will initial spares for the 120mm improvement be provided?

Answer. The funding requirement to support the M1 tank transition from initial to replenishment spares is in FY 85. The requirements for the M1E1 tank have been included in the replenishment line beginning in FY 85.

QUESTION. Of the $498.5 million for initial spares, how much is for the M1 and how much is for the M1E1?

ANSWER: The requirements shown ($498.5 million) in the FY84 budget for the total program is for the M1 only. There is no funding for the M1E1 in the FY84 budget request.

QUESTION: What would be the impact of delaying part of the M1E1 initial spares to FY1985 or FY1986 as programmed last year?

ANSWER: There is no impact. The previously identified funding requirements for the M1E1 in FY1985 and FY1986 no longer exist. Therefore, these requirements were not identified in the FY84 budget submission.

QUESTION: Explain what justifies a nearly 50 percent reduction in initial spares funding for the entire Bradley Fighting Vehicle program since last year.

ANSWER: The total column of the FY83 budget identified a total requirement of $530.7 million, while the total column of the FY84 budget identifies $260.7 million for the Bradley Fighting Vehicle. This reduction is due to a transition of the Bradley Fighting

Vehicle requirements into the replenishment spares line beginning FY86.

QUESTION: In light of this reduction, explain the increase of FY1984 funding for Bradley initial spares. What would be the impact of holding FY1984 funding to the $49.6 million proposed in last year's budget submission?

ANSWER: Increase in FY84 funding for initial spares in support of the Bradley System is attributed to an increase in the failure factor for transmissions from 6 to 31 per 100 transmissions. The failure factor increase resulted in a $6.6 million unfunded FY83 carryover and a $6.3 million increase for FY84, which is included in the $62.5 million. Holding the funding level to $49.6 million would not allow the Army to field systems with required spares.

QUESTION: The 1984 submission increases spares and repair parts funding $11.8 million over the 1984 column in the 1983 budget submit. How much of this increase is for initial spares and how much for replenishment spares?

ANSWER: The $11.8 million increase resulted from $5.1 million for initial spares and $6.7 million for replenishment spares.

DIVAD

QUESTION: It appears the Army has decremented the 40mm DIVAD Gun ammo line by 18.3M. A Dec SAR notes that this could affect planned fielding of the DIVAD Gun. What are the specific impacts of this reduced 1984 funding level on DIVAD fielding?

ANSWER: $18.3 million is the decrement between the fiscal year 1983 and fiscal year 1984 budgets. This decrement affects primarily the proximity fuzed (HEPX) round. The fiscal year 1984 requirement for HEPX rounds is 290,000. The funds available are sufficient to procure about 185,000 rounds. The batteries may be fielded with existing ammunition assets. If they are fielded with the currently planned required combat load of ammunition, the following delays would be expected:

Battery No.	Months Delay
1	0
2	5
3	3
4	1
5	2
6	2
All Others	2-3

QUESTION: The Dec SAR notes that 34M has been restored to the FY83 program. The 84 P1 does not reflect any such restoration. Please clarify what the SAR means.

ANSWER: The SGT YORK fiscal year 1983 Budget request included $84 millon identified by the Government Accounting Office as a management reserve which they recommended for reduction because the Army had not identified the specific uses for these funds. During the Appropriation Committee's analysis of the Army's fiscal year 1983 budget submission the Senate Appropriations Committee reduced the management reserve by $50 million and the House Appropriations Committee reduced it the full $84 million. Based on the Army's identification of requirements for these management reserve funds, the Joint Conference Committee compromised on a reduction of $50

million. The effect, then, was restoration of $34 million to the fiscal year 1983 program, and this is what the December 1982 System Acquisition Report refers to.

QUESTION: In light of the apparent programatic funding problem, why did the Army reduce the 74.4M appropriated for advanced procurement by 5.6M in FY83? Where did the money go?

ANSWER: The additional $5.6 million decrement in fiscal year 1983 was the result of an Army-wide decrement to all programs for Independent Research and Development and Bid and Proposal (IR&B/B&P) allocations. $5.6 million was the SGT YORK share of this decrement. In view of previous reductions to the SGT YORK weapon line, the Program Manager chose to allocate this decrement to the Advance Procurement line.

QUESTION: Describe the economic price adjustment clause of the DIVAD Production Contract.

ANSWER: The economic price adjustment (EPA) clause provides for adjustment to both labor and material dollars based upon actual costs experienced. These cost adjustments are based solely on Bureau of Labor Statistics Indices for Labor and Material, which are part of the contract. These indices have a built-in annual inflation rate which is compared on an annual basis to the actual incurred inflation rates. If the inflation rate increases or decreases, then the Target Cost, Target Price, and ceiling of the contract are adjusted upward or downward respectively. Target Profit is not adjusted. As an example, if the contractor projected and built in to his costs a projection of 8 percent for annual labor inflation increases, and the actual labor inflation increase is 4 percent, then we reduce the cost of labor by 4 percent.

QUESTION: For the Lot 1 of the production contract, what is the projected unit cost? Will that be above target and, if so, by how much? Does the Project Manager expect Lots 1 and 2 will go to ceiling?

ANSWER: Per the SGT YORK systems contract, the Option 1 hardware Unit Target Price for the fire unit is $2.995 million (less the GFE Chassis). The projected unit cost is at full ceiling which is $3.626 million. Option 2 is budgeted to ceiling. The Project Manager thinks that the cost for the second production option could come in under ceiling. However, it is too early in the production phase to accurately predict the actual cost of the second production option.

QUESTION: Briefly summarize the results of the recently completed RAM-D testing at Aberdeen. Identify the major accomplishments and remaining deficiencies.

ANSWER: The major accomplishments of the RAM-D were: (1) Exposure of the SGT YORK system to a highly stressful shock/vibration/high humidity environment for the first time, and the identification of failure modes resulting therefrom, (2) Extensive mobility evaluations on various terrain, (3) Exposure to arctic temperatures in the chamber, and the identification of resulting failure modes, (4) Successful completion of the first of several planned Built-In-Test (BIT) demonstrations, (5) Demonstration of the electronic Identification Friend or Foe (IFF) function, (6) Identification and correction of a main engine/auxiliary power unit overheating problem on the chassis, and (7) Successful demonstration

of search radar function against a hovering helicopter in a highly-cluttered tree-top environment. Although improved reliability performance was not demonstrated, nearly all failure modes have been identified and will be corrected in production hardware. Fixes for five mission failure problems remain open, but appear to be within the state of the art. Based on the contractor's track record in correcting problems (average time to develop a fix was 1½ months, 95 percent of fixes worked the first time), it is expected that the five mission failure problems will be corrected in initial production hardware.

Only a few prior problem areas remain to be tested in the upcoming Engineering Production Unit Test (EPUT). These include (1) Evaluation of the production design feed system, (2) Hit probability against maneuvering fixed wing aircraft (prior performance marginally below requirements), (3) Radar-only tracking in a multi-path environment (refined tracking algorithm), (4) Precise timing of reaction sequence during an anti-radiation missile countermeasure, (5) one deceptive electronic counter-countermeasure, and (6) Selected Human Factors improvements.

QUESTION: On the basis of these test results, is there any basis for delaying the award of Lot 2 production contract?

ANSWER: No. All failure modes except five have been identified and will be corrected in production hardware. There is no basis for delaying the Option II award. Solutions for the five are within the state of the art and are expected to be in production hardware. Delaying the award of the Option II contract would cause the Government to renegotiate the contract at a later date, thereby losing the very favorable contract terms which were negotiated while Ford and General Dynamics were still in competition.

QUESTION: What is the year-by-year procurement profile dollars and quantity for the 35 foot maintenance and test sets?

ANSWER:

FIELD MAINTENANCE TEST SET PROCUREMENT FUNDING PROFILE ($M)

FY81	FY82	FY83	FY84	FY85	FY86	FY87
8.7	14.0	12.4	29.8	3.6	3.6	2.2

FIELD MAINTENANCE TEST SET PROCUREMENT QUANTITY PROFILE

FY81	FY82	FY83	FY84	FY85	FY86	FY87
1	5	22	3	3	1	

The above procurement profiles for both quantities and funding include both mounted and dismounted Field Maintenance Test Sets (FMTS). The FMTSs are used for field support (18), training (7), training support (4), testing (1), factory test equipment and prototyping (5). The above funding also includes augmentation equipment and Test Program Sets (TPS) for the five Armaments Command (ARRCOM) purchased AN/USM-410s for depot and ARRCOM usage.

QUESTION: What is the projected delivery schedule for these maintenance vans?

ANSWER:

FY84	FY85	FY86	FY87	FY88	FY89
10	11	5	3	3	3

These deliveries include not only the 18 Field Maintenance Test Sets used in the field, but also 17 additional used for training, support of the training base, testing, and factory test equipment.

QUESTION: What is the current basis of issue within the Army?
ANSWER: The current basis of issue is shown below:

TOE Field Usage	18 each
Training Equipment	7 each
Training Base Support	4 each
Testing	1 each
Factory Test Equipment	4 each
Prototype	1 each

QUESTION: Have any of these vans been built, fielded, and/or tested by Army troops yet? If so, what have been the results of those tests? What further tests are planned?

ANSWER: The SGT YORK Field Maintenance Test Set (FMTS) was not designed from scratch. It is a modification of the AN/MSM-105(V)1 test and repair facility previously designed, built, and tested by the Product Manager, Automatic Test Support System (PM, ATSS) located at Fort Monmouth, New Jersey. For the last two years, the AN/MSM-105(V)1 has undergone Developmental Testing (DT) III and Operational Testing (OT) III. Problems were encountered. Fixes were made where necessary. The Army has accepted the item for fielding. The first AN/MSM-105(V)1 has been fielded to Fort Hood. Two others are presently in transit for fielding to Europe.

The SGT YORK FMTS has not yet been tested. The functional difference between the SGT YORK FMTS and the AN/MSM-105(V)1 is embodied in two additional racks of test equipment and approximately 190 Test Program Sets (TPS). This additional SGT YORK peculiar equipment is not expected to significantly change the test capability demonstrated by the AN/MSM-105(V)1 and found acceptable by the Army. Because of the high degree of commonality with the AN/MSM-105(V)1, the SGT YORK FMTS is also expected to successfully pass testing.

Future testing is planned to demonstrate the capability of the FMTS, especially the SGT YORK peculiar portions of the design. Contractor testing will take place between June 1983, and October 1984. Physical Teardown and Logistics Demonstration (PTLD) testing, DT type testing, and OT type testing are planned by the Government between January and November of 1984.

In the event design or integration deficiencies are discovered within six months of acceptance of the technical data package, Ford has the responsibility to correct those deficiencies at no increase to the target cost or ceiling of the present contract. In addition, Ford is responsible to repair any equipment that may fail within the first six months after acceptance of each of the individual FMTSs, also at no increase to the target cost or ceiling.

PIVADS

QUESTION: What is the approved basis of issue for the PIVADS? Will this basis of issue be subject to review at the May 1984 IPR?

ANSWER: PIVADS is a product improvement to the VULCAN Air Defense System. Development and fielding of this improvement package was approved by the Army in June 1982, to provide the reserve component forces with an improved air defense capability. The M163A1 self-propelled VULCAN systems will be refurbished, upgraded to the Product Improved VULCAN Air Defense System, and transferred to National Guard units as they are replaced in the active divisions by the Sergeant York Air Defense Gun System. The M167A1 towed VULCAN systems will remain in the active light forces

after upgrade to the Product Improved VULCAN Air Defense System until replaced by a new lightweight air defense system. Each of the ten National Guard divisional air defense battalions will receive 36 Product Improved VULCAN Air Defense systems replacing the M42A1 DUSTER systems.

This basis of issue will not be subject to review at an In-Process Review to be scheduled prior to award of a production contract.

QUESTION: What will the $5.3 million in R&D money be used for in FY 1984?

ANSWER: The fiscal year 1984 Research and Development money is needed to expand the current Product Improved VULCAN Air Defense System development contract to include development of modification kits for the M167A1 towed VULCAN system. The current contract is for the self-propelled system only.

QUESTION: If this 1984 development effort is necessary, how do you justify a production decision in May of 1984?

ANSWER: The June (not May) 1984 production decision was based on the development of the self-propelled VULCAN modification kits. Our current schedule will allow a production decision in June 1984, for the self-propelled system.

QUESTION: What is the impact of delaying initiation of this new program start one year?

ANSWER: Delaying the initiation of the development and procurement of towed Product Improved VULCAN Air Defense System (PIVADS) would stretch out the entire PIVADS program which would escalate costs. Further, a delay would mean that we could not provide our light active forces with a near-term improvement in their air defense capability. It is our plan to provide the 9th Infantry Division with 36 towed Product Improved VULCAN Air Defense Systems as part of the Army's requirement to equip the High Technology Light Division by fiscal year 1986. This plan is further predicated on the approval of a fiscal year 1983, $1.5 million, reprograming action now being staffed.

M60 Machine Gun

Question: How will the 368 machine guns purchased in 1984 be distributed to the FRG reserves? How many additional M60's will be provided to the FRG out of stock? Is this the host nation support program for which funding is being sought in the FY 83 NATO Supplemental?

Answer: 368 machine guns to be purchased in FY 84 will be distributed to German Bundeswehr Reserve units to be activated 1983-1987 under the auspices of the US-GE Wartime Host Nation Support Agreement signed 12 April 1982 by U. S. Ambassador Burns and FRG Foreign Minister Genscher. Germany will activate approximately 170 Reserve units to provide critically needed logistic support to U. S. forces in transition to war and during wartime. These units include transportation, POL and ammunition supply, casualty evacuation, facility security, decontamination, and military police. Cost sharing formula provides for the U. S. and

Germany to share costs approximately equally. Germany will provide the majority of the equipment from the civilian economy with the U. S. providing items, like machine guns, which are not available from the civilian sector. 368 machine guns will be distributed to [deleted].
No M60 machine guns are projected to be provided out of existing stocks. Funding in FY 83 Supplemental Appropriations Request does not include M60 machine guns.

Budget Line 33-M240 Armor Machine Gun

Question: What were the actual negotiated contract costs for the 4th and 5th years of the multi-year contract? What were the associated recurring unit costs on each contract?

Answer: The M240 Armor Machine Gun is procured under a five year, multi-year fixed price contract with Economic Price Adjustment (EPA). The contract was awarded in FY 1979 for 16,417 weapons for $62.245M. Individual program years are not renegotiated. Recurring costs were not specified in the contract, which was awarded at a firm, fixed price of $3400.00 per weapon.

Question: In the remarks block of the P21 exhibit, it is noted that if the 1984 budget is reduced below $11.8 million there is a potential for break in production. Why have you only requested $11.6 million in the budget? If $11.6 million is not sufficient, how much is required?

Answer: The $11.8M reflected in the remarks block of the P21 exhibit was incorrect because of a typographical error. The $11.6M request is correct and the note in the remarks section should be changed accordingly.

Question: For calendar years 1982 and 1983 to date, what have been the actual deliveries by month?

Answer: 1982: Sep-45; Oct-193; Nov-220; Dec-208. 1983: None. M240 deliveries have been delayed because of problems associated with establishing a new factory, training a qualified work force, and developing reliable vendors. The manufacturer is currently changing many of its manufacturing methods and adding capital equipment to meet contractual delivery requirements.

40mm Grenade Launcher (MK19-3)

Question: Describe in XM699 high mobility weapon carrier referenced in your P40 display.

Answer: Nomenclature XM699 is incorrect. This should be the weapons carrier configuration of the High Mobility Multipurpose Wheeled Vehicle (HMMWV). The HMMWV is a 1 1/4-ton payload diesel powered, high mobility 4X4 tactical wheeled vehicle.

Question: What is the current basis of issue for the MK19? Has the Mark 19 been approved for use by all light infantry divisions in the Army? What is the approved Army AAO?

Answer: The MK19 has been approved for combat support and combat service support units in all types of Army divisions, and for combat units in the High Technology Light Division (HTLD). The US Army Training and Doctrine Command is staffing a revision to the basis of issue plan which will add MK19's to combat battalions of light infantry and mechanized infantry divisions. The currently approved Army acquisition objective of 9676 does not reflect these revisions.

Question: Will the 72 Mark 19s proposed for FY 1984 go entirely to the 9th infantry high technology test bed?

Answer: No. The FY 1984 procurement is planned to support units other than the HTLD. Plan is to field the MK19 in Military Police units to support the rear area security mission.

81mm Mortar, XM252

Question: Is the Army still planning to replace some or all of the 4.2 inch mortars with the new 81mm XM252 mortar? If so, please display by year the number of new mortars added to inventory and the number of 4.2 inch mortars taken out of service.

Answer: The Army will not replace any 4.2 inch mortars with the new 81mm XM252 mortar. The Army has decided to retain the 4.2 inch (107mm) mortar which has more ammunition growth potential than the smaller caliber 81mm mortar.

Question: If the 4.2 inch mortar is to be retained in inventory, what is the former and revised AAO of both mortars? What are the AAOs of the associated ammo?

Answer: The Army had planned to replace all 4.2 inch mortars with the XM252 81mm mortar. This would have virtually eliminated any requirements for 4.2 inch mortars or ammunition other than to support our allies. Although we have decided to retain the 4.2 inch mortar, we have not yet determined what the mortar organizational structure of the Army will be. As a result, the revised mortar and ammunition AAO's are not defined.

Question: What is the status of the 60MM lightweight company mortar program? How will this mortar be used? What is the former and revised AAO? AAOs for ammo?

Answer: The 60mm lightweight company mortars are being assembled, proof tested and fielded. Fielding will be completed by 2QFY84. It will be used as a company level mortar in ranger, scout and mountain units and in light infantry companies in areas of the world (Alaska, Panama, Korea) where portability is the major consideration. We had planned to use the 60mm mortar as the Army's standard company level mortar. The resulting AAO was 3334. Now that the XM252 81mm mortar will be the standard company level mortar, the 60mm mortar AAO is 717, and the ammunition AAOs are being developed. The Army has procured 1590 of the 60mm mortars. Those 60mm mortars that are not needed for AAO requirements will be used to meet Special Forces Operational Project requirements.

Question: What would be the impact of delaying the start of production of the XM252 until FY 1985?

Answer: Impact on the program would be a one year delay in fielding the Improved 81mm Mortar System. There would also be diplomatic impact. The 81mm mortar program is a codevelopment effort with the United Kingdom. They justifiably expect us to procure the system when we confirm that it meets our requirements. We project that this procurement can start in fiscal year 1984.

Question: Briefly describe the results of the recent DT/OT testing. What were the three most significant shortcomings found?

Answer: During DT/OT testing conducted in 1982, the XM252 Mortar System met all significant technical and operational requirements except one. A powder increment container problem caused excess residue in the tube and occasional muzzle flash. This powder increment container problem has since been solved and on-going testing to verify the solution is scheduled for completion in

May 1983. We expect the mortar and high explosive ammunition to be approved for service use in the fourth quarter of fiscal year 1983.

Budget Line 40 - Personal Defense Weapon, 9mm Handgun

Question: What are the current milestones and associated dates for the test program?

Answer: Specific milestones for testing and procurement will be developed when the budget requests of the Services are approved by Congress.

Question: What have been the results to date of the source selection testing?

Answer: No source selection actions have been initiated. If the Congress approves the Services' budget requests, the Army will test, select, and procure a standard 9mm handgun for the Armed Forces.

Question: What weapons are currently being considered for this off-the-shelf buy? What are the countries of origin for each of these weapons? Have any of these weapons met the requirements of the JSOR; have any failed to meet the requirements of the JSOR?

Answer: The Army has not issued a Request for Proposal nor initiated any other source selection action and no weapons are currently being evaluated against the JSOR.

Question: Does the Army consider this 9mm handgun program to one of its high priority modernization programs?

Answer: The Army recognizes the need to standardize handguns and handgun ammunition. Over a period of years, it is expected that standardization would reduce maintenance, logistical, and training requirements. The 9mm program, however, when compared to other programs competing for funds in this constrained fiscal environment, receives a low priority.

BUSHMASTER RAPID FIRE WEAPONS SYSTEMS (25MM)

QUESTION: Your P22A exhibit indicates that starting with FY 1983 the Bushmaster will be procured under a three year multi-year contract. No other information provided to the Committee is consistent with that. Your FY 1983 multi-year justification submission does not include the Bushmaster. The program managers 24 January 83 brief does not mention this multi-year procurement. What is the Bushmaster procurement strategy for 1983, 1984, and 1985?

ANSWER: The M242 25mm gun procurement strategy for FY 83, 84, and 85 was for an annual contract with Hughes Helicopters, Inc. A multi-year solicitation was issued in 1982 and the resulting proposal from Hughes Helicopters was on a single-year basis, with two options for the FY 84 and 85 requirements to be exercised accordingly. The FY 83, 84, and 85 multi-year justification was submitted by ARRCOM but was not approved and a single-year (FY 83) contract is to be awarded by ARRCOM after completion of "Should Cost" analysis. Competition is planned beginning in FY 84 for a three-year, multi-year contract.

QUESTION: If a FY 1983 multiyear procurement has been or is contemplated, under what authority is this being undertaken? Provide copies of exhibits 2 and 3 of multiyear justification materials to show financial benefit to the government.

ANSWER: The fiscal year 1983 contract is a conventional multi-

year contract of the type that has been used in the past. It consists of a negotiated contract for fiscal year 1983 with priced options for 1984 and 1985. Accordingly, it is not possible nor required to develop the multiyear exhibits which must accompany an economic order quantity or above threshold contract for more than one year.

QUESTION: Other justification materials suggest that, in fact, the Bushmaster will be procured in a competitive mode. In preparing your 1984 budget submission, what percent savings were assumed possible through the use of competition in the Bush Master program?

ANSWER: Total program from FY84-FY89 under sole source is approximately $300 million for 5152 guns. It is estimated competition (winner-take-all) would save six to ten percent. The winner-take-all contractor would begin producing in FY84. All quantities would go to this contractor starting in FY86.

QUESTION: How will the annual production quantities be split between the competitors if a competitive strategy is followed?

ANSWER: The M242 25mm gun strategy is:

- FY 83 - single-year to Hughes Helicopter, Inc. (HHI) for the total requirement of 820 each.
- FY 84 - single-year to HHI for 795 each and 100 each competed under a planned three-year, multi-year procurement (FY 84, 85, and 86).
- FY 85 - single-year to HHI for 851 each and 364 each under the three-year, multi-year procurement.
- FY 86 - the full requirement of 1,361 will be manufactured under the last year of the three-year, multiyear procurement which was awarded in FY84.

QUESTION: What is the $3.5 million for non-recurring tooling for in FY84? What rate of production will this additional tooling support?

ANSWER: All of the $3.5 million requested is to support ramp from 60 to 95 guns per month.

QUESTION: What evidence does the Army have that costs are under control in this particular program?

ANSWER: Evidence that costs are under control is reflected by significant decreases in both PMO and contractor Estimates at Completion (EAC). At the beginning of Option II, (FY81 procurement) the contractor's efficiency rate was 44%. Since that time, the contractor has improved his efficiency rate to 85%, which has resulted in a lower EAC.

QUESTION: What are the cost sharing ratios above target for each year of the contract since FY 1980? What are the ratios of ceiling to target for each year?

ANSWER: M242 gun cost sharing ratios are:

FY 80 - 80% Government/20% Contractor
FY 81 - 80% Government/20% Contractor
FY 82 - 80% Government/20% Contractor

M242 gun ratios of ceiling to target are:
FY 80 - 1.19
FY 81 - 1.23
FY 82 - 1.23

PRODUCTION BASE SUPPORT

Question: Justify the $2 million project at Maremont Corporation for M60 and M2 machine guns in light of virtual termination of these two items in the near future.

Answer: The rehabilitation of government owned equipment at Maremont is required to support peacetime and mobilization production. The Army will have a recurring requirement for M60 and M2 spares. In addition there are firm production orders for the M60 and M2 machine guns which will sustain production through the third quarter of FY85. Currently potential orders will extend production through the third quarter of FY86.

Even though a portion of Maremont's current workload is associated with foreign military sales, the Army derives benefits because such sales maintain an active production base which would be readily available in the event of mobilization. In addition, the Army collects charges from foreign military sales customers for non-recurring costs and from the contractor when equipment is used for direct sales orders.

Question: In light of the replacement of the Vulcan Air Defense gun by the DIVAD, why is it necessary to modernize the production facility for the Vulcan?

Answer: Provision of Industrial Facilities project 68X8053 will rehabilitate government-owned industrial equipment used by General Electric in the production of the Vulcan Air Defense gun and the 20mm weapon for the COBRA helicopter. This equipment which is used for peacetime and mobilization production, must be rehabilitated in order to have these items produced within design tolerances.

Although the DIVAD (Sgt York) will replace the Vulcan in the active Army, the Vulcan System will be fielded with the National Guard. In addition, there will be recurring requirements for spare components for both the Vulcan and the 20mm weapon.

Question: What would be the impact of delaying the two modernization projects associated with providing additional equipmentfor peacetime mobilization (Project No. 68X8150 and 68X8166)?

Answer: Project 68X8150. Deferral of this project will mean that it will not be possible to acquire industrial equipment needed for mobilization. The equipment would be made available to planned producer in order to augment the thick wall cannon production capacity of Watervliet Arsenal during mobilization. Deferral will not affect peacetime production, but it will not permit the Army to increase mobilization capacity and reduce mobilization response time for the production of cannons.

Project 68X8166: Deferral of this project will preclude the Army from acquiring industrial equipment which is to be provided to private contractors for the production of fire control components. The proposed equipment will help to make peacetime operations more efficient and it will serve to increase capacity for mobilization. Deferral could mean that inefficient and more

timely methods of production will be used in production of fire control equipment. The types of fire control component includes periscopes, telescopes and alignment devices for weapons such as the M60A3 tank and M198 self-propelled howitzer.

Question: With respect to the $8.3 million requested for projects under $900,000, please identify by project number the 10 most important projects proposed for 1984.

Answer: The 10 most important Manufacturing Methods and Technology (MMT) projects under $900,000, proposed for 1984, are prioritized as follows:

PRIORITY	PROJECT NUMBER
1	6848241
2	6847985
3	6848306
4	6848324
5	6818154
6	6848370
7	6848103
8	6848402
9	6848326
10	6848424

COPPERHEAD

Question. In view of recent testimony before the House Armed Services Committee, please provide the current status of this program. If changes are anticipated, provide impacts to your FY-1984 program by budget category and identify affected line items.

Answer. On 4 April 1983, the Secretary of Defense provided certification of the continuing Copperhead program, required by the Nunn-McCurdy Amendment, to both Houses of Congress. This certification supports a revised Copperhead acquisition program that will total 30,462 rounds when completed in fiscal year 1991. This certification is based on a program acquisition unit cost of $54,400 per round, reflecting a recently restructured program substantially different than either the appropriated program or that in the fiscal year 1984 President's Budget. These are reasonable estimates of cost based in part on contractor-provided data; if further analysis and contract negotiations do not provide high confidence that the program can be continued within these estimates, the Secretary of Defense intends to reevaluate whether to proceed with the restructured program. Furthermore, no changes are anticipated in the fiscal year 1984 Copperhead budget request of $75.0 million.

Question. The Congress limited fiscal year 1983 funding to $15 million for terminating the Copperhead program. However, budget backup data shows that the fiscal year 1983 program includes $45 million for 800 projectiles. Further, the Army is requesting $75 million for 1,415 projectiles in fiscal year 1984. Why is the Army proceeding with the Copperhead program?

Answer. We are proceeding with the Copperhead program to provide additional capability to Army units and to preserve our initiative in developing and using the technology associated with smart munitions. The Army feels this capability is useful and

desirable on the modern battlefield and should be pursued further.

Question. Have the past technical deficiencies, low reliability and performance limitations been resolved?

Answer. Copperhead's present demonstrated reliability is 81% in monthly Lot Acceptance Tests since July 1982. This improved reliability resulted from closer scrutiny of manufacturing procedures and better inspection procedures of parts and components prior to assembly. Additionally, hardware improvements, such as a dual starter for the battery, a better voltage regulator, and a new flex harness for the control actuator, are being incorporated. In recent live fire tests (not part of Lot Acceptance Tests), there were five hits out of five rounds fired. These five rounds included all reliability fixes. This is further indication that the Army is committed to insure the product's reliability remains acceptable. Past performance limitations have been corrected through design changes incorporating pulse width discrimination and spot jump inhibitor circuits. These changes corrected the limitation that required uninterrupted line-of-sight between the forward observer and the target, significantly improved performance in smoke, dust and adverse weather, and enhanced the probability of hit under conditions of laser spill over and spill under (laser reflection from background and foreground).

Question. Unit costs for the fiscal years 1983 and 1984 programs exceeds $50,000. This is more than twice the fiscal year 1983 cost estimate of $24,066 each. Please provide reasons for this significant increase. How does the Army justify paying so much for projectiles originally estimated to cost $16,575 each? At what unit cost does the Copperhead cease to be cost effective.

Answer. The estimate of $16,575 (ea) per round was the price of Copperhead in the January 1979 Five Year Defense Plan (FYDP) that was prepared in Sep-Oct 1978. This estimate was based on an acquisition plan that the Army would buy 133,058 rounds at a rate of 3,000 per month as a competitive multi-year procurement. The DSARC III in Nov. 1979 approved a reduced buy of 44,386 rounds at a rate not to exceed 700 rounds per month. Further, production would be limited to 200 rounds per month until an 80% reliability was demonstrated. The FY83 President's Budget projected a procurement unit cost of $24,066 (ea) based on an FY83 buy of 7,629 rounds for $183.6M. The approved program of 44,986 rounds was funded for $1364.0M. This request was reduced by the Authorization Conference to $15.0M, without prejudice, because the Army did not fund Copperhead procurement during the FY84-88 POM deliberations.

Later, the Army requested and OSD approved a reinstated buy of Copperhead through FY84 for a total buy of 10,230 rounds funded for $673.2M. This severe change in program structure, from 44,986 rounds to 10,230 rounds, caused the program acquisition unit cost to increase to $65.8K (ea) and a breach in the Nunn-McCurdy Amendment. OSD certified a revised Copperhead program to Congress on 4 April 1983 which continues the procurement program through FY 1991. The proposed program will procure 30,462 rounds for $1658M. This results in an estimated Program Acquisition Cost of $54.4K (ea). In order for Copperhead to cease being cost effective, its Program Acquisition Unit Cost would have to become more than $71.5K.

VIPER

Question. Please provide the current status of this program. If changes are anticipated, provide impacts to your FY 1982-1984 program by budget category and identify affected line items.

Answer. The current status and projected changes for the Viper program for fiscal year 1982-1984 are described below. The Army conducted a decision review of the Viper Program in March 1983. Army recommendations were to:

a. Stop production deliveries

b. Test and shelve the fix to the Viper

c. Maintain a warm base until the results of the LAW Evaluation are available.

d. Insure Viper is a full competitor in the LAW Evaluation. Secretary of Defense approved the Army recommendations on 5 April 1983. The Army is taking action to implement these recommendations contractually. A review of this course of action may be necessary in August 1983 when the LAW Evaluation results are available.

60MM LIGHT WEIGHT COMPANY MORTAR

Question. Please provide the status of this procurement program as regards your FY 1984 requirements. If changes are anticipated, provide impacts to your FY 1984 requirements by budget category and affected line items.

Answer. Based on the recent Chief of Staff decision to retain the 4.2 inch mortar, and reduction in requirements for the 60mm mortar round, the Army expects that requirements will be reduced so that the FY84 buy of the M720 round will not be necessary. If so, the Army will request committee support to transfer the FY84 budget funding request for 60mm to the 4.2 inch HE mortar. Other line items related to the 60mm mortar will not be affected since no FY84 procurement had been planned.

CARTRIDGE, 7.62MM BLANK, NATO LINK

Question. The Army's projected inventory position at the end of FY84 funded delivery period will be 100 million rounds without an FY84 buy. This is 50 million rounds (almost 2 years estimated consumption) in excess of requirements. Why is the Army requesting funds for this item?

Answer. This request exceeds current requirements due to a reduction in training authorizations established by Department of Army subsequent to the development of the FY84 through FY88 POM. The Army will request committee support to transfer FY84 budget funding for this item to 5.56mm SAW (Blank), .38 Cal, and 105mm TP-T ammunition procurement.

CARTRIDGE, .22, ALL TYPES

Question. The Army's inventory of .22 caliber cartridges greatly exceed requirements without an FY84 buy. Why then, is the Army requesting funds for this item?

Answer. The FY84 buy exceeds the Army inventory objective at the end of FY84 FDP due to reduction in Department of Army forecasted training authorization. The Army will request committee support to transfer FY84 budget funding for this item to 5.56mm Blank ammunition for the Squad Automatic Weapon (SAW).

CARTRIDGE, 9MM BALL, XM882

Question. As of March 1, 1983, the Secretary of Defense had not approved a Pistol Acquisition Plan and the 9mm program has been held in abeyance since September 1982. What is the Pistol Acquisition Plan and why is it important for the Army's XM882 procurement?

Answer. The Pistol Acquisition Plan provides an operating framework for execution of a program to select a standard 9mm pistol to meet Service requirements. The plan addresses areas such as: Service Requirements and Funding; Integrated Logistic Support Concepts; Test and Evaluation Approach; Milestones; and Procurement Approach. The U.S. version of 9mm ammunition, which meets the requirements of NATO STANAG 4090, has been designated XM882 and will ultimately be used in the standard 9mm pistol.

Question. Why has approval of this plan been delayed and when is a decision expected?

Answer. The 9mm Personal Defense Weapon (PDW) has received both strong support and strong opposition in Congress. The FY1982 Appropriations Act required continued testing and evaluation without delay. Conversely, the FY83 Authorization Bill, Section 110, prohibits the Army from obligating or expending FY83 funds for the 9mm handgun program. Additional language permits procurement for the Coast Guard, who recently confirmed that testing and procurement should not proceed on a "Coast Guard only" basis.

Because of the mixed Congressional support and the Coast Guard position, activities have been delayed and the Army will test, select, and procure a standard 9mm handgun for the Armed Forces if the Congress approves the services FY84 budget requests.

Question. What additional steps are necessary to complete testing and acquisition efforts for the XM882 cartridge? How long will each step take?

Answer. Steps necessary to complete testing and XM882 acquisition:

PLANNED TASKS	BAU* SCHEDULE (WKS)	ACCELERATED SCHEDULE (WKS)
A. PROJECT AUTHORIZATION	0	0
B. COMPLETE EVALUATION OF PROTOTYPES	8	4
C. PROCURE FINAL DESIGN		
o CONTRACT AWARD	38	16
o 100K ROUNDS DELIVERED	48	24
D. COMPLETE TECOM AND NATO TESTS	60	32
E. TYPE CLASS IPR	64	36

*BAU = BUSINESS AS USUAL (1-8-5 SCHEDULE); WEEKS SHOWN ARE CUMULATIVE (D+ SCHEDULE).

Question. Why is the Army requesting funds for 9mm ammunition and guns in fiscal year 1984 if type classification is not expected prior to June 1984, 6 months later than Army regulations allow?

Answer. Though type classification prior to June 1984 is not expected, financial resources are requested so that a concerted effort can be applied to meeting an accelerated schedule resulting in FY84 procurements should it be required.

Question. Provide a table showing each Service's (quantity, unit cost, total cost) request to procure pistols and ammunition in fiscal year 1984.

Answer.

	WEAPON QTY/UC/TOTAL $	AMMUNITION QTY/UC/TOTAL $
Army	11,500/339/3.9M	5M/.24/1.2M
Navy*	1,100/454/.5M	-0-
Air Force	3,000/333/1.0M	-0-
Marine Corps	6,053/330/2.0M	2.5M/.24/.6M
Coast Guard*	2,200/409/.9M	-0-

*Program costs include ancillary equipment.

Question. Is the Army acting as the central procuring agency on this item?

Answer. The Army has been designated by the Office of the Secretary of Defense as the Executive Agent for the 9mm handgun and ammunition programs.

Cartridge, .50 Caliber, APIT

Question: The Army has sufficient quantities on hand and in funded undelivered programs to meet its needs through the end of the FY 1984 funded delivery period without a FY 84 buy. Why then, is the Army requesting this item in its FY 84 budget request?

Answer: The Army requested $5.0 million to purchase 2.4 million rounds of this item in its FY 1983 budget. Congress provided only $1.2 million because the initial request would have resulted in inventory exceeding the Army's needs.

The Army will still have sufficient inventory and funded undelivered program quantities to meet its expected needs through the end of the FY 1984 funded delivery period without the FY 1984 buy. However a restructuring of the acquisition program for the caliber .50 blank rounds will require increased funding for blank ammunition procurement. The Army intends to realign funds within the caliber .50, all types, line to permit execution of the FY 1984 contract for blank rounds.

CARTRIDGE, .50 CALIBER, M1A1 BLANK

Question. The Army has sufficient quantities on hand and in funded undelivered programs to meet its needs through the end of the FY 1984 funded delivery period without a FY 84 buy. Why then, is the Army requesting this item in its FY84 budget request?

Answer. In December 82, a detailed review of the caliber .50 blank acquisition program was conducted. This included a review of training authorization and possible means to achieve program stability and cost reductions through multi-year

acquisition. After this review the program was structured to achieve these objectives. A multi-year contract was awarded to the Olin Corporation in January 1983. The restructured program permitted deletion of the planned FY 1983 procurement of the caliber .50 blank M9 link round, but requires stable funding to support the multi-year contract. Funds previously approved for FY 1983 will be reprogrammed for other high priority ammunition items. FY84 budgeted funding for .50 Cal APIT will be realigned to procure Blank ammunition.

Question. Is the Army obligated to procure blank cartridges from Olin Corporation in FY 1984 even though no cartridges are needed?

Answer. We are contractually committed and a penalty cost would be incurred if the FY 1984 or FY 1985 production cannot be funded.

Question. If yes, why did the Army enter into the multi-year contract? Please provide a cost comparison for cartridges procured from Olin Corporation versus Lake City AAP.

Answer. A multi-year contract was entered into to save money for the FYDP requirements. This was also in keeping with the Carlucci Initiatives to encourage capital investment by private industry. To illustrate the savings, the following is a per round cost comparison between Olin Corporation and Lake City AAP.

Olin		Lake City	
M9	M15A2	M9	M15A2
$0.649	$0.655	$0.7746	$07244

The comparison shows savings of 16% on the M9 round and 10% on the M15A2.

Question. What is the Army's liability to Olin Corporation in the event only a portion of the 15 million cartridges is requested?

Answer. Maximum cost exposure would be $1,023,750 if FY84 and FY85 were canceled. This cost is based on the 3½ percent penalty in the FFP contract. If only FY85 were terminated the liability is 2 percent or $580,697.00. Total contract is $29,334,864.00.

CARTRIDGE, 20MM, ALL TYPES

Question. Production schedules indicate the FY 1984 program will be produced at below the minimum sustaining rate. Why is it scheduled at below the minimum sustaining rate? What effect will this have on the unit cost?

Answer. The total planned 20mm M50 series for FY84 is 5,731,800 rounds.

DODAC	SERVICE	QTY (THOU)
A651	AF	63
A651	NA	105
A652	Army	2,788
A652	FMS	11
A653	FMS	24
A891	AF	285
A892	AF	37.8
A896	Army	1,421
A896	NA	997

The schedule for the FY84 program by itself is below MSR. However, when combined with a late start FY82 Air Force program at 500,000 rounds per month, the total schedule exceeds the MSR and as a result there is no effect on unit cost.

Question. Projected inventory for both the Cobra and Vulcan will exceed the Army's projected requirements if funds are provided as requested. Why is the Army requesting more cartridges than it needs?

Answer. The FY84 buy exceeds the Army requirements for FY84 due to reductions in the Department of Army forecaster training authorization. The Army will request the Committee's support in realigning FY84 budgeted funding for this item to ammunition simulators.

CARTRIDGE, 25MM ALL TYPES

Question. The 25mm HEI-T and TP-T are supposed to be NATO interoperable but as we understand it they are not. Why aren't the U.S. produced rounds interoperable?

Answer. The 25mm (U.S. produced) TP-T and HEI-T ammunition is interoperable in the Oerlikon KBA-B02 gun provided a 1.9mm gas port orifice is used. This was confirmed by Army Materiel Systems Analysis Activity (AMSAA) independent evaluation report of 1979 and the Food Machinery Corporation testing in Aug. 79. The U.S. manufactured 25mm rounds are safe to fire in the Oerlikon KBA-B02 gun without restriction. During burst fire, it is claimed that U.S. ammunition would cause a rate of fire that exceeds the Oerlikon "guaranteed" firing rate. At the initiation of the Americanization of the Oerlikon ammunition and self-powered gun, the weapon was issued with a kit containing various sizes of orifices to control the firing rate. Following the production of U.S. ammunition, the Dutch standardized the orifice size as 2.2mm for their KBA-B02-B gun system. The U.S. ammunition was designed to utilize a 1.9mm orifice. With the larger orifice utilizing U.S. ammunition, the firing rate exceeds the top limit of the Oerlikon "guaranteed" rate during long bursts.

Question. What is the Army's current schedule for developing a NATO interoperable round?

Answer. During the 21-23 Mar 83 NATO Working Group Meeting, a new test scenario was developed to define interoperability. This scenario utilizes the Oerlikon KBA-B02-B gun and Oerlikon standard test equipment. The test requirements state the quantity of rounds, firing sequence, and method of measuring rate. The recently procured Oerllikon equipment will soon be operational. US personnel completed KBA-B02 operational training at Oerlikon in Mar 83. Results of the NATO interoperability tests are planned for May 83. If the US rounds are found not to be interoperable, the current investigations of cartridge case finish and/or alternate propellant will be intensified.

Question. How much will it cost to develo fully NATO interoperable rounds?

Answer. The US 25mm ammunition interoperability test, in accordance with the Mar 83 draft NATO inspection and proof manual scenario, will be concluded in May 83. Successful completion will require no further action. Minimal fluctuation of the firing rate may require a change to the cartridge case finish, i.e., more resistant coating. Any potential change must be

completely tested and verified in both the US M242 Gun and the Oerlikon KBA-B02-B gun prior to incorporation into production. Costs cannot be determined until completion of tests.

Question. Are there any lower cost options available, e.g., modifying Oerlikon guns?

Answer. Yes. The Dutch must agree to standardize a smaller rate of fire limiting orifice. That would make lower cost options available.

Question. When the second production source (Honeywell) was added why didn't the Army require that Honeywell produce NATO interoperable rounds?

Answer. The second source production contract with Honeywell required NATO interoperability as a firm performance requirement. In support of this requirement, the contract provided for GFE of Oerlikon KBA-B02-B weapon, test stand with ancillary equipment, and ammunition. A procurement request for the Oerlikon equipment was submitted. The Oerlikon procurement required cost and pricing data which Oerlikon claimed to be illegal under Swiss law. A waiver for cost and pricing data was disapproved by SARDA in Sep 81. Efforts to continue procurement were unsuccessful until a waiver was approved by SARDA in Apr 82. Contract was awarded Apr 82 with deliveries completed in Feb 83. Due to the above delays, the Oerlikon equipment could not be provided in accordance with second-source contract provisions. In contract renegotiations, the interoperability requirement was reduced to a goal due to nonavailability of GFE to conduct required testing during the ammo pre-production phase.

Question. Facilities Project 5812855 provided $11.6 million for expanding Bushmaster capacity and increasing competition. What facilities have these funds provided and at what costs?

Answer. $1,600,000 of $11,600,000 provided by the Project 5812855 was expended to cover the cost of tooling for the manufacture of Links, cartridge cases, cartridge case paint line, and cartridge case non-destructive test equipment. It provides a capacity of 160,000 cartridges per month at 1-8-5 shift basis. The balance of $10,000,000 was reprogrammed for other work.

Sooner Defense Inc. was awarded a contract for supplying the fuze M758 at a unit cost of $6.11. This contractor did not request any facilities from the Government. Sooner will have a capacity to produce 25,000 fuzes per month at 1-8-5 shift basis. Previous sole source price from Honeywell for the same fuze was in excess of $11.00 per fuze.

Thus competition has been provided successfully to Ford Aerospace and Communicaiton Corp. (FACC) as is evidenced by the fact the Army exercised its option with Honeywell for 900,000 cartridges on 15 Nov. 82, at a cost of $14.17 vs FACC unit price of $45.55 of Oct 82. This reflects a savings of $28.0 million.

In addition, the Aerojet Ordnance Corp. has submitted 25mm Bushmaster ammunition to the Army for testing to become a qualified producer. This will further increase the competition in the production base.

Question. What is the status of the propellant problem with the APDS-T?

Answer. The APDS-T propellant was government-furnished material in the initial 25mm ammunition contract. Early pre-production lots experienced high pressure results at high

temperature. Various bleedings and coatings were investigated. The "new" APDS-T propellant has been qualified and is in production at Radford Army Ammunition Plant. The four lots of production propellant produced have met all specified requirements. The APDS-T cartridges began full-rate production in Dec 82. The release for issue of the M791 cartridge was approved on 25 Mar 83.

Question. Production schedules in budget backup data indicate that the Army plans to produce fiscal year 1983 and prior years APDS-T funded programs by September 1984. Given the limited production experience with this round and the rather long standing propellant problems (as well as problems such as cartridge case failures), isn't the production schedule overly optimistic?

Answer. No. Increased monthly deliveries are within the available production rate capabilities.

Question. Please provide a schedule, by month, of APDS-T rounds delivered through February 1983.

Answer. Deliveries were as follows:

Apr 81	7,246
Dec 81	27,000
May 82	3,000
Jun 82	3,000
Jul 82	2,500
Aug 82	2,200
Nov 82	9,100
Dec 82	13,547
Jan 83	2,010
Feb 83	144,992
	214,595

Question. The Army has an ongoing $10.5 million product improvement program for using a long rod penetrator in the APDS-T with type classification projected about October 1985. Should the Army minimize procurement of the existing APDS-T to permit buying more rounds with the long rod penetrator?

Answer. The long rod penetrator program has been initiated in support of user requirements dictated by future threat, but lack of programmed funds may delay completion date. The Army is planning to competitively procure the M790 series requirement among three mobilization producers starting in FY84. Minimizing quantities will adversely affect the cost per round. The M791 APDS-T fully meets all the currently stated performance requirements. The cartridges to be produced will defeat the present threat and will not be obsoleted with the introduction of the long rod penetrator, since the M791 can be economically utilized for training purposes and demonstrations until a training round can be authorized and developed.

25MM Training Round

Question. We understand the Army is considering developing a training version of the APDS-T because training with the combat round is largely limited to already overloaded tank firing ranges. What is the status of the training round?

Answer: The training version of the APDS-T is being considered, but currrently has no Research, Development, Test, and

Evaluation funds programed. If funded, the Army will pursue development, type classification and production.

Question. The Army estimates it will use several hundred thousand APDS-T rounds in training during fiscal year 1984. Was the limited range availability considered in developing the estimate?

Answer. Yes. Range availability was considered and will be adequate to meet FY84 training requirements.

Question. Analysis of receipt and loss data for the TP-T indicates that assets will exceed the inventory objective by over 900,000 rounds if the FY1984 program is fully funded. Why is the Army requesting funds in excess of those needed to meet the inventory objective?

Answer. The inventory objective was significantly reduced due to a change in training requirements that occurred subsequent to development of the FY84 budget. The Army requests committee support in realigning funding to the 25mm HEIT buy to avoid closing the production line. This action will avoid the excessive cost of opening the line on a biennial basis to support War Reserve and training requirements.

QUESTION: The Army estimates training losses of several hundred thousand TP-T and a similar number of APDS-T rounds in each of fiscal year 1984 and 1985. Will enough vehicles be deployed to consume such quantities? Please provide schedule showing the ammunition programs are coordinated with the vehicle delivery and deployment programs.

ANSWER: Yes. Current training ammunition requirements for the 25mm TP-T and APDS-T are based on weapons density and rounds required to support each weapon system. FY84 and FY85 weapon densities and training ammunition requirements are as follows:

		FY84	FY85
Number of	Bradley M2	498	672
Weapons fielded	Bradley M3	235	474
(Year end cumulative	LAV	0	102
Totals)			

Training Ammo Reqt

	FY84		FY85	
	APDS-T	TPT	APDS-T	TPT
Training reqt.	611K	767K	817K	882K

Bradley Fighting Vehicles and the Light Assault Vehicles (LAV) both use 25mm ammo.

40MM CARTRIDGES SERGEANT YORK SYSTEM

Question. According to the contract the target unit cost for proximity fuzed rounds is about $205 while Army and OSD adjusted requests show a unit cost o $312 and $307, respectively.

a. Explain the reasons for this cost growth of approximately $108 or 53 percent per round.

b. Describe the Army's rationale in deciding to purchase 250,000 proximity-fuzed rounds instead of the 297,800 rounds agreed to in the contract.

c. To what extent did the Army consider the ramifications of this action, such as renegotiating in a sole source environment because of non-compliance with contractural terms.

Answer. a. There is no cost growth between what is reflected in the contract vs the budget request. There is an apparent misunderstanding concerning what is covered in the contract vs the budget:

(1) The contract quantity is 297,800, whereas the budget quantity is 250,000.

(2) The FY84 contract unit price of $205 is not a complete round. The FY83 contract includes a long lead provision for the HEPX round for a unit price of $55. The total contract target price is $205 + 55 = $260 per round.

(3) The contract does not cover costs for in-house engineering support, quality assurance, etc.

(4) The budget includes contract ceiling price.

The table below compares the provisions of the contract to the budget request:

	CONTRACT		
	Target	Ceiling	
297,800 Rds	$205	$233	(FY84 Opt 3)
Long Lead Items	55	65	(Included in FY83 Opt 2)
Unit Price	$260	$298	(Complete round)

	BUDGET Ceiling	
250,000 Rds*	300	(Complete round)
In-House Costs	12	(Not in contract)
	312	

*This quantity was reflected for FY84 in the FY83 Budget Request. The FY84 program quantity in the FY84 President's Budget is 171,000 Rds.

b. In Nov 81, as a result of OSD not allowing the procurement of long lead parts in support of the HEPX round, the Army restructured the procurement as follows:

	FY82	FY83	FY84	TOTAL
Contract Qty with Long Lead	2000	25000	298000	325000
After Restructure	8000	92000	300000	400000

In Feb 82, the Army had a requirement for additional ammunition funds. Since the Army was now planning to procure 92000 rounds in FY83, a reduction to 250000 rounds in FY84 could be absorbed without affecting fielding requirements.

c. Since OSD disallowed the procurement of long lead items for the proximity fuze ammunition, renegotiation of the ammunition contract lines in FY84 (Option 3) has been required since late 1981.

Question. What was the basis of OSD's downward adjustment to the Army's budget request and how were the quantities to be purchased determined?

Answer. OSD reduced the FY1984 procurement to a 10 month program because of a two month slip in the FY1982 program deliveries. OSD further adjusted the program in FY84 to 14 thousand rounds per month (the maximum FY1983

production rate) to minimize the impact of any additional schedule slippages. Additionally, funds identified for contractual contingencies in FY1984 and FY1985 were also deleted by OSD.

QUESTION: Project officials stated the fielding of the Sergeant York system will be delayed because of insufficient ammunition to support the system at the battery level. They estimate the first battery will be fielded on time, but the second battery's fielding will slip 5 months and all others 3 months. What impact will this have on the overall program costs and schedule aside from the 3 month delay in fielding the Sergeant York batteries?

ANSWER: The potential ammunition shortages are a by-product of funding cuts which the Sergeant York has been subjected to in the last two budgets. The $22.9 million cut in the fiscal year 1983 budget and some internal reductions in fiscal year 1984 prior to submission have caused us to closely examine the quantity of proximity ammunition which we will procure. Estimates on the schedule slippage are based on our requirement projections for those proximity rounds. We are re-examining those requirements to determine if, in fact, we can continue the present fielding schedule. Should our re-examination of the requirement reveal that we cannot procure sufficient quantities to support our present schedule, then some slippages will occur. It is difficult to estimate a specific cost increase that would result, but it is clear that the time delays would translate to millions of dollars. It may be prudent if these shortages materalize to submit a reprograming action to support procurement of sufficient proximity-fuzed rounds. Of equal importance, delays in fielding of this system will leave our units with VULCAN for air defense coverage in the forward maneuver area of our heavy divisions. The VULCAN system is inadequate to perform the mission. The operational impact of a delay in Sergeant York fielding is as serious as the potential financial impact.

Question. The primary reason for developing a U.S. propellant was to increase the muzzle velocity generated over that generated by the foreign propellant thus increasing the effectiveness of the proximity-fuzed round at long ranges. Ford's inability to obtain the desired muzzle velocity without exceeding the system specification for barrel pressure appears significant; especially in view of the fact that Army considered reducing the muzzle velocity specifications and, therefore, the effectiveness of the proximity round in order to meet the barrel pressure specification.

a. To what extent does the barrel pressure generated by the U.S. propellant at the required muzzle velocity exceed the original "barrel" pressure specification?

b. Explain why exceeding this specification is so serious the Army considered foregoing the improved performance of the proximity round at the higher muzzle velocity.

Answer. The primary reason for developing a U.S. propellant was to allow manufacture of the rounds in the U.S. and avoid reliance on foreign sources. As part of the Technology Transfer Fabrication and Test (TRF&T) program Ford Aerospace and Communications Corp (FACC) was to produce a CONUS equivalent to the Bofors 40mm L/70 ammunition and chose to increase the velocity and consequently increase the effectiveness of the proximity round. As a baseline Ford converted the Bofors

ammunition specification to a CONUS equivalent. FACC translated pressure requirements from the Bofors copper crusher value of 320 megapascals (MPa) to a piezoelectric baseline using a Bofors correction factor of approximately 17 to 18%, yielding 380 MPa.

The thrust of this effort was to establish what the actual pressure measurements were for both Bofors and CONUS ammunition, the difference in measurement techniques and what correlation if any could be established between the two techniques. The results, according to Ford, showed both techniques to yield pressure values to within 1 to 2% of each other. The most salient result, however, showed that in fact Bofors own round did not meet their pressure specification and in fact was consistent with those pressures obtained with the CONUS cartridges.

a. The original Bofors and Ford specification, though in error, quoted a max mean pressure at 21°C for the 1030 m/s and 1100 m/s cartridges respectively of 380 MPa. The reconciliation test data showed the true value of both to be approximately 410 MPa.

b. The Army has never considered reducing the velocity of the proximity cartridge. In fact, the higher velocity can be accommodated within the specification pressure limits. In light of the reconciliation test data, in which both Ford and Bofors participated with 1600 rounds being fired both at Bofors and in the U.S., Bofors has certified that their barrels to be used in the SGT YORK Gun system are able to withstand the revised pressure values as reflected in the test data and in the FACC specifications.

Question. As a result of the pressure reconciliation test between the U.S. propellant and foreign produced propellant the system specification for barrel pressure was revised upward.

a. Explain how the test results alleviated the concerns caused by exceeding the barrel pressure specification.

b. To what extent has the Army analyzed the impact of the increased barrel pressure on the gun's barrel wear and reliability, and what were the results?

Answer. The pressure value was changed to reflect the true value of 410 MPa as opposed to the original correlated estimate of 380 MPa. The reconciliation test results provided several outstanding conclusions:

1. That the original Bofors pressure specification when extrapolated from a copper crusher to a plezoelectric pressure measurement was in error.

2. That both Bofors and U.S. pressure measurement techniques agreed to within 1 to 2% accuracy.

3. That the primary problem was that of establishing a correct baseline rather than that of propellant formulation.

4. That Bofors does not measure pressure and velocity at the same time as does the U.S., but utilizes an inherently different technique, indigenous to Europe.

5. That both the U.S. and Bofors ammunition exhibit comparable pressure values.

The reconciliation test is complete, however, the final report is not yet available. Based on preliminary results, the CONUS and Bofors ammunition pressure limits are comparable.

As previously mentioned, since there was no actual pressure increase, the Army has had no need to analyze its effect.

Army is concerned about the possible impact of increased wear connected with increased muzzle velocity and its associated

higher propellant flame temperature; however technical solutions have been found to this problem. In any event the Army believes it has contractual protection against the risk of increased barrel wear.

CARTRIDGE 60MM HIGH EXPLOSIVE M720 MORTAR PROJECTILE

Question. The Army projects elimination of the M720 backlog in time for the fiscal year 1984 buys. Have any recent events occurred which could adversely effect the backlog situation?

Answer. No. However due to a recent Chief of Staff Army decision on the 4.2 inch mortar in lieu of the 60mm LWCMS, the Army requests committee support to transfer the FY84 Budget funding request for 60mm to the 4.2 inch HE mortar.

Question. How many M720 projectiles and M734 fuzes have been delivered to date?

Answer. To date 13,300 M720 projectiles with M734 fuzes have been produced. Ten thousand rounds are awaiting acceptance testing at Aberdeen Proving Ground, 1300 rounds in the Army's inventory are restricted from issue until the new material release is signed and 2,000 rounds are in the hands of field units. The new material release should be signed in April 1983.

Question. How many are accepted on waiver and why?

Answer. None of the rounds have been accepted on waiver, however, the 2,000 rounds in the field were specially produced for specified field units and released under a limited new material release.

Question. What is the status of the 225,000 M734 fuzes which failed acceptance testing in early 1983?

Answer. 191,000 M734 fuzes have been accepted. The bursters were replaced in them. 34,000 fuzes were rejected.

60mm Mortar

The Army plans to reduce M224 weapon system fielding from 1600 to less than 500.

Question: Why this significant reduction in fielding of M224? Does the Army have about 1100 more M224s than it needs?

Answer: In fiscal year 1978 and fiscal year 1979, the Army procured 1590 M224, 60mm Mortars to replace the current standard M29A1, 81mm Mortars at company level in non-mechanized infantry units. The Army has since decided that the XM252 Improved 81mm Mortar will be the standard company level mortar. Therefore, the M224 Mortars will be fielded only in specific units such as Ranger Units and areas of the world such as Alaska, where compared to the 81mm mortar, the lighter weight of the 60mm mortar will be a significant advantage.

The Army does not have more M224 Mortars than it needs. Those M224 Mortars that are not fielded will be used to meet Special Forces Operational Project requirements.

CARTRIDGE 60MM HIGH EXPLOSIVE M720 MORTAR PROJECTILE

Question. What is the current inventory requirement for the M720?

Answer. The current inventory requirement for the M720 is 1405K. However, based upon the recent Chief of Staff decision to

go with the 4.2 inch mortar, requirements are being recalculated and the Army does not expect these requirements to exceed 269K.

Question. Can the inventory requirements be met without the fiscal year 1984 buy?

Answer. New requirements are currently being developed for the 60mm M720 round. It is anticipated that new requirements will be something less than 269K. If so, the FY84 buy would not be required, and the Army will request committee support to transfer the FY84 budget funding request for 60mm to the 4.2 inch HE mortar.

Question. Does the Army plan to reinstate funding for the illumination and smoke rounds in the M720 family?

Answer. No, due to the new Chief of Staff decision to go with the 4.2 inch in lieu of the 60MM LWCMS, the Army does not plan to reinstate funding for the illumination and smoke rounds in the M720 family.

Question. What is the current cost to load, assemble and pack an M720 projectile versus the cost if the new automated facility could be used?

Answer. The current cost to load, assemble and pack an M720 projectile is $13.06 per unit. If the line could be run at an economic rate, the savings per unit would be $4.24.

Question. The Marine Corps fuze has only two settings and cost $25.00 each. The Army's fuze costs $90.00 each, but has four settings. How important are the additional two settings to the Army and why does the Army consider the M734 cost effective?

Answer. The Army considers the two additional fuze setting modes (proximity and near surface burst) important and cost effective because of the increased degree of lethality with the multiple option fuze.

Question. Has the Army reconsidered the need for the M734 fuze considering its plan to reduce mortar deployment.

Answer. The Army still plans to put the M734 Multiple option fuze on the new 81mm HE UK ammunition.

Question. What is the current status of the manufacturing methods and technology project intended to reduce the increment containers cost from $1.80 to $.35 each and is this reduction considered in the M720 funding requested for fiscal year 1984?

Answer. The FY83 manufacturing methods and technology facility project will be canceled based upon the new Chief of Staff, Army decision to go with the 4.2 inch mortar.

81MM MORTAR AMMUNITION

Question. Does the Army plan to procure this item in subsequent years? Is the XM853 scheduled to replace this item? If yes, please show the phase-in schedule for the XM853 and provide the type classification date.

General Mason. FY84 funding of $22.4 Million supports procurement of the old standard 81mm illumination munitions. The new modernized 81mm illumination round, XM853, is scheduled to replace this round. Type classification for the XM853 is scheduled for 3rd quarter FY84 with initial procurement funding starting in FY85.

Question. The inventory objective of 342,000 cartridges will be exceeded by 66,000 cartridges if the request is fully funded. Why is the Army requesting funds to procure more than

the required number of cartridges especially if it is scheduled to be replaced in the near future?

Answer. The requested procurement quantity in FY84 for the old standard illumination rounds is the minimum sustaining rate (MSR) at Longhorn Army Ammunition Plant, Texas. The new modernized 81mm illumination XM853 round which will be procured in FY85, will also be produced at Longhorn AAP, Texas. The FY84 requested funding for the old 81mm illuminating round will provide production continuity at Longhorn AAP through the FY84 funded delivery period, maintaining a warm base, until the new 81mm illuminating XM853 round is ready for production in FY 85.

Question. Is the program quantity being driven by workloading requirements at the production facility? Please explain.

Answer. Yes. The FY84 requested funding for the old standard 81mm illumination round provides production continuity at Longhorn AAP, Texas (warm base) pending the introduction of the new 81mm illumination XM853 in FY85.

Question. What impact, if any, will retaining the 4.2 inch mortar system have on requirements for the 81mm illuminating cartridge (M301A3 or XM853)?

Answer. The 81mm illuminating XM853 requirements will increase slightly. A large reduction in requirements will occur for 60mm illuminating requirements based on retaining the 4.2 inch mortar system.

CARTRIDGE, 4.2 INCH, ALL TYPES

Question. Analysis indicates the Army will have 57,000 cartridges in excess of requirements if the FY 1984 request for 141,000 cartridges is authorized. Why is procurement requested for cartridges exceeding requirements?

Answer. The production line applicable to the Cartridge 4.2 Inch Illum will be closed and be placed in layaway at the end of the FY82 program as a result of the FY 83 program cancellation. Based upon the recent decision of the Chief of Staff to go with the 4.2 inch mortar, all requirements for 4.2 inch ammunition are being recalculated. A major increase in requirements for this round is anticipated. The FY 1984 buy of 141,000 will provide for an economical initial start up quantity which will transition into a continued stabilized production profile through the POM period.

Question. If the request is reduced to meet stated requirements, could production be scheduled to permit continuous production of FY 84 and subsequent year procurements? Please explain.

Answer. Because there is no FY 83 procurement the 4.2 Inch Illum line will be shut down after August 83. FY 1984 planned production is scheduled to tie in with FY 85 buy as follows:

FY	PLANNED BUY	PROD SCHED	MONTHS
84	141K	20.0K	Jan 85 - Jul 85
85	330K	23.5K	Aug 85 - Sep 86

If the FY84 buy is reduced by 57K, the FY 85 production would have to be moved up to May 85. Funds would be required by October 84. If funds are not received there will be a three

month break in production impacting approximately 69 direct labor personnel. This schedule is based on an overall view of programs planned for production at Longhorn Army Ammunition Plant.

Question. Will the 4.2 inch illuminating round and the weapon from which it is fired be totally replaced by the (Improved) I-81mm Mortar for U.S. forces, as the Army stated last year? If not, why not? If yes, why is the Army projecting such large training losses for the cartridge?

Answer. No. Since the decision has been made to retain the 4.2 inch mortar system, there will be a continuing requirement for the 4.2 inch illuminating round.

Question. What mortar systems are planned for the U.S. forces and what are the expected time schedules for deployment?

Answer. The Army plans to retain the 4.2 inch mortar as its heavy mortar system, the I-81mm mortar as the medium mortar system and the 60mm mortar in a limited role. The 60mm mortar will be fielded by IQ FY 1984. The I-81mm mortar will be fielded in FY 1987.

Question. Last year, we asked why the US Army did not train with the older M565 fuzes and use the new M577's for war reserve. The Army said some M565's were being retrograded, but the remainder were needed to support first generation improved conventional munitions since they were manufactured specifically for these rounds and from a readiness and cost standpoint there was no reason to retrograde the remaining fuzes. Now we understand the Army is retrograding 300,000 more fuzes to the US for training with the 4.2 inch illuminating round. Why has the Army decided it is now feasible to retrograde the M565 fuzes?

Answer. Subsequent to last year's question of why the M565 fuze was not used for training and the US Army's response, five lots totalling 39,350 each of 4.2 inch illuminating rounds, M335A2 with fuze M577 failed ballistic acceptance testing because of excessive duds. Cause of this excessive high dud rate has not yet been determined. Rather than continue assembling the production of 4.2 inch illuminating rounds with the M577 fuze and incur the probability of a 20 percent reject rate, it was decided to begin assembling illuminating round with existing M565 fuzes.

Question. What savings will result from this action? Do these savings reflect transportation costs and the higher cost of the M577 fuze to replace the M565 from Europe?

Answer. Substantial savings are possible as a result of the fuze exchange action which could approach $21,000,000. Currently, there are serviceable fuzes in the stockpile which are in excess of 20 years old. Many of these fuzes are showing signs of deterioration and it is probable that many of these fuzes will exceed their usual life and would shortly require demilitarization with subsequent replacement. Utilization of these older M565 fuzes on 4.2 inch illuminating rounds and expenditure through peacetime training would result in acquisition savings in the out-year programs of approximately $70 per each M565 fuzes used. The return and use of the older M565 fuzes and emplacement of new M577 fuzes in the Europe war reserve is estimated not to exceed $500,000. Higher costs of the M577 in the calculation of potential savings are not considered since no additional M577 fuzes are being bought. Those already planned for procurement and placement on the 4.2 inch illuminating rounds are being made available for alternate placement in the Europe war reserve to replace those M565's withdrawn from the Europe war reserve and used on the 4.2 inch mortar rounds.

Question. Is the Army going to test some of the ballistically rejected lots with M565 fuzes prior to retrograding the entire 300,000?

Answer. Yes. Each lot of 4.2 inch rounds will be subject to ballistic acceptance testing. There is no reason to anticipate problems with the M565 fuze with the M335A2 as it was the standard fuze prior to development of the M577 fuze.

Question. Since the Army is planning to retrograde fuzes for the FY84 4.2 inch illuminating program, should this budget line be reduced by $10.7 (144,000 @ $74) and the fuze budget line increased by the same amount? Please explain.

Answer. No. The $10.7 million included in the program cost breakdown for the 1984 unit cost of cartridge 4.2 inch illuminating M335A2 with fuze M577 does not include the cost of the non-propagating pack required for the M577 fuze procured for placement in war reserve stocks. The 4.2 inch illuminating program should be reduced by $10.7 million (144,000 @ $74) and the fuze budget line increased by $11.5 million (144,000 @ $79.50) to reflect actual costs.

155MM ADAM

Question. Why is the Army now planning multiple shift operations when it was considered too costly and unnecessary last year?

Answer. The Army is no longer planning multiple shift operations.

Question. What are the comparative costs for producing the ADAM at a 1-8-5 and multiple shift rate?

Answer. The cost to load, assemble and pack the ADAM at Louisiana AAP on a 1-8-5 shift basis is slightly higher than producing at a 2-8-5 shift rate - $410.00 versus $395.00.

Question. Last year the Army said subcontractors could meet FY 83 delivery dates within the funded delivery period (FDP) if the reorder leadtime was increased from 12 to 18 months. To our knowledge, leadtimes have not increased. What impact will this have on the Army's ability to deliver within the FDP?

Answer. Subsequent to the 28 January 1983 preparation date of the P21 Form for the fiscal year 1984 budget, the initial leadtime for the ADAM round was increased from 12 to 15 months. The reorder leadtime was increased from 12 to 15 months. The increased leadtimes will allow the Army to deliver within 1 month of the funded delivery period.

Question. Louisiana AAP is scheduled to produce the ADAM at or near maximum capacity. What alternatives, if any, does the Army have to complete delivery within the FDP in the event production problems are experienced?

Answer. The fiscal year 1984 ADAM program can be produced on a 1-8-5 shift basis within 1 month of the funded delivery period. This round has been in production since 1977. Vendors producing key components are base producers with a great amount of experience. Major production problems are not anticipated.

Question. Why doesn't the Army maintain a more realistic production rate of 1-8-5 until plant improvements are made to increase production rates?

Answer. The fiscal year 1984 ADAM program will be produced at a most efficient 1-8-5 production rate of 81 projectiles per shift or 1,700 per month.

155MM RAAMS

Question. Undelivered funded programs for this item remains the same as last year. Why hasn't the Army been able to reduce this quantity?

Answer. Subsequent to the 28 January 1983 preparation date of the P21 Form for the fiscal year 1984 budget, the initial leadtime for the RAAMS round was increased from 15 to 18 months. The reorder leadtime was increased from 12 to 15 months. The increased leadtimes will allow the Army to deliver the fiscal year 1983 and fiscal year 1984 programs within the funded delivery period.

Question. The Army plans to increase production to about a 2-8-5 shift basis. Does the Army have any experience which suggests the increased production rate can be met without encountering additional problems?

Answer. Yes. This round has been in production since 1979. Producers of key components have had several years of experience and all have the capability to increase production rates.

Question. Can this projectile be assembled elsewhere if Iowa AAP can't produce at the scheduled rate? If so, where?

Answer. No. Iowa Army Ammunition Plant is the only plant facilitized to produce this round.

Question. Current production schedules show the FY 83 program being completed in Nov 84 - 2 months beyond the funded delivery period (FDP). Why?

Answer. The previous production schedule showing the fiscal year 1983 program being completed in November 1984, 2 months beyond the funded delivery period, was based on a 12 month reorder leadtime. The change to a 15 month reorder leadtime will complete the fiscal year 1983 program within the funded delivery period.

PROJECTILE, 155MM GB2, M687

Question. What are the primary reasons why a source for DC has not been established since the M687 was approved for production in November 1976?

Answer. Chemical weapons were not allowed to be produced between 1976 and the submittal of the 8 Feb 82 Presidential certification of need to Congress for the production of chemical weapons. It was, therefore, not possible to assure the existence of a DC supplier by the placement of a production order for DC due to the existence of this restriction. When the M687 was type classified in 1976, three companies had expressed interest in manufacturing production quantities of DC in the 1975/80 timeframe. Ethyl Corporation was considered the prime choice for supplying DC based on the company's interest, on chemical price per pound, their ability to produce quality R&D quantities of DC, and their experience in producing commercial chemicals similar to DC. Contact was maintained with all potential DC suppliers as well as trying to seek out additional sources for supply. In May 1982, Ethyl Corporation withdrew as a potential supplier for DC. At this time there are no existing commercial suppliers for DC. However, there appears to be commercial interest in a GOCO DC facility arrangement with the Government.

Question. Can the M687 be assembled without the DC necessary to produce DF, and can the DF canister be inserted at some later date?

Answer. The M687 Projectile metal parts with loaded closed

bottom ogive, the M21 OPA canister and simulant canisters can be produced and assembled in advance of DC availability. The M20 DF canister could be filled and inserted at some later date. However, both the DF and OPA canisters must be available to have an operational capability.

Question. What other components are unique to the M687 and what potential is there that the Army will have difficulty procuring these components?

Answer. The filled OPA canister is unique but its alcohol/amine components are readily available in industry. Canister filling operations are common in industry, but the supplier may need to tool up for this purpose. For this reason, an 18 month lead time is forecast in acquisition of filled OPA canisters. If fill equipment is not readily available, the DF canister fill design should be easily adaptable to OPA canister fill, if necessary.

There is one other component which could be a procurement problem at some future date. It is the polyethylene used for canister liners, made by Phillips Chemical Corporation. It is a sole source material designated Marlex 407 MQ. Phillips has agreed to manufacture this material for the Government even though they no longer make the material as a standard product. However, Phillips' position in this matter could change if additional delays in procurement occur or if the economy in the plastic industry improves.

PROJECTILE, 155MM GB2, M687

Question. Why has private industry had limited interest in producing this chemical and difficulty in meeting the Army's specifications?

Answer. The uncertainty of the binary program funding is the prime deterrent to industry interest. Since the item, DC, is militarily unique having no other uses commercially, industry is reluctant to invest in facilities required for a procurement which was not approved until 1982, and for which facility project and item procurement funds have been continually withdrawn. These actions, plus objections to the chemical program in general, make involvement in DC production unattractive to the chemical process industries.

There has been no difficulty in meeting DC specifications during the manufacture of DC at Phosphate Development Works (PDW) in the past. Approximately 110,000 tons of DC were produced at PDW during the 1953-57 time period. There are several processes which could be adopted by industry which could successfully produce DC with no major difficulties anticipated.

Question. About 400,000 pounds of DC is stored at Rocky Mountain Arsenal and its quality is to be evaluated. What quantity of this DC will be used to prove out the DF facility at Pine Bluff and how many projectiles can be filled with the remainder?

Answer. 100,000 pounds will be used for prove out of the DF facility at Pine Bluff Arsenal. Approximately 500,000 pounds of DC is in storage, subject to verification when tanks are opened. Based on an assumption of 90 percent purity of the material and 80 percent availability (due to transfer and bottom losses), 360,000 pounds may be recovered. 100,000 pounds will be used for prove out and the re-

maining 260,000 pounds could be used to produce DF sufficient to fill 34,000 projectiles.

Question. What effort is required to evaluate the quality of DC stored at Rocky Mountain Arsenal?

Answer. Samples must be drawn from the DC stored in the individual tanks, four from each tank, and analyzed. Other efforts required to prepare and transfer the material include inspection of rail lines, the tank car unload system, and the transfer lines to the storage tanks.

Question. Will the Army contaminate the new DF facility at Pine Bluff Arsenal if uncertainty exists over the M687's entry into production?

Answer. Yes, the Army will prove out the facility even if uncertainty exists over production. This is essential in determining the operability of the plant as designed. After prove out, the process equipment can be purged and decontaminated prior to layaway. These procedures will be developed as part of the equipment contract currently in execution.

CHARGE, PROPELLING, ALL TYPES

Question. How does the Army intend to fill the Marine Corps' FY1984 request for 155mm M4 and 8 inch M2 prop charges?

Answer. The Army intends to fill the Marine Corps FY84 request for 103,620 each M4's from procurement with customer funds. The Marine Corps FY84 request for 24,776 each M2 charges will be filled from existing Army stocks.

Question. Would readiness be improved if the Army filled the Marine Corps request from existing stock and used the Marine Corps funds to procure additional M119A2 and M188A1 prop charges to meet Army requirements? Please explain.

Answer. In response to question two concerning readiness, if the M2 and M4 were supplied to the Marine Corps from stock and Marine Corps funds were used to procure replacement charges, readiness would not be improved as assets are forecasted to be considerably below required postures at the end of the FY84 FDP.

8 INCH PROJECTILE, HIGH EXPLOSIVE, M509A1

Question. This item has incurred some production problems resulting in delays. For example, last year load, assemble, and pack was scheduled to begin in June 1982 and now the target month is April 1983. Yet, the Army anticipates production at the maximum rate of the load, assemble and pack facility about November 1983, and completion of the fiscal year 1983 and prior year programs by October 1984 -- the start of the fiscal year 1984 funded delivery period. This schedule leaves little room for error and gives the appearance of merely putting together a schedule which shows the programs can be delivered on time. Since this is a new item with no production history, isn't such scheduling overly optimistic?

Answer. No. This round is very similar to the 155mm M483 ICM Projectile. It utilizes the same grenades as the M483 round and many millions have already been loaded at Lone Star AAP. The stacking and assembly into the M509 is identical to the M483, the only difference being the number of grenades to be loaded. The projectile metal parts have already been produced and delivered against the FY81 and FY82 programs. Similarly, the cargo metal

parts are available. The major new effort will be the drill and pin operation.

Question. This is a relatively new item, yet the Army is working on an $841,000 product improvement program to utilize a threaded base plate rather than a drill and pin plate. The Army estimates that the threaded base plate will reduce base plate costs by about $15 per unit. Is this correct?

Answer. No. The threaded base plate cost will not be reduced by $15 per unit. The cost reduction of $15 will be in the assembly of the base plate to the loaded projectile. It is a far simpler operation to "screw" the base plate into the projectile than to use the "drill and pin" assembly operation.

Question. How much has the Army invested in drill and pin equipment for the M509A1?

Answer. The Army has invested about $2.6 Million for drill and pin equipment.

Design	$ .180 Million
Fabrication & Installation	2.390 Million
	$2.570 Million

Question. What will be done with this equipment when the Army switches to the threaded base plate?

Answer. It will be excessed and reported to the Defense Industrial Plant Equipment Center (DIPEC) for reissue.

Question. Why wasn't the threaded base plate designed into the projectile from the start? Such a plate is being used on the similar but somewhat smaller 155mm M483A1.

Answer. The M509 was originally designed with 13 rows of grenades to be fired with the M2 propelling charge in the M110 howitzer. In that configuration the base plate was too thin to accept threads. After type classification a requirement to be compatible with the M188 extended range charge was approved. That necessitated strengthening the base of the projectile by removing one row of grenades and increasing the thickness of the base plate. It then became feasible to thread the new base and a product improvement program was initiated.

Question. In comparing budget backup data submitted for the fiscal year 1983 program with that submitted for the 1984 program, we note about a $200 decrease in estimated unit costs. What is the reason for the decrease?

Answer. The actual 1983 contract costs decreased and, as a result, 1984 program estimates were reduced.

Question. The fiscal year 1984 budget backup data indicates a $436 cost for the projectile and projectile base plate assembly. Army responses to questions last year indicated a fiscal year 1982 unit cost of $333. Further, a second source is starting production which should tend to hold or even lower costs. Is the $436 cost estimate overstated? What type base plate is used in the estimate (drill and pin or threaded)?

Answer. The $436 cost estimate may be high. The estimate is for a drill and pin base plate assembly. There is no good procurement history for this item because prior year FY81, 82 contracts were for relatively small prove out quantities and contracts were cost plus. FY83 contract has yet to be negotiated but will be firm fixed price.

Question. Budget backup data indicates contracts will be awarded to two producers for projectiles and projectile base plates. Is the larger portion of the program being awarded to the lower cost producer? If no, why not? Please provide a

schedule showing quantities, negotiated price and unit costs of contracts awarded for the projectiles and projectile base plates to date.

Answer. The FY84 metal parts contract will be divided between Norris and Scranton. Since Scranton's 1-8-5 capacity is 84,000 Norris will receive the majority share (119,000) of the 203,000 total.

	FY81	FY82	FY83
Scranton			
Q	15,000	77,000	60,000
Negotiated Unit Price	369	325	348*
Utilities	20	20	20
Total (Rounded)$	390	346	369
Norris			
Q	6,000	21,550	90,000
Unit price	472**	487**	FFP Not yet Negotiated

* Ceiling ** CPIF

ANTIARMOR HAND GRENADE XM78

Question. Where and how will the XM78 grenade be fielded if it is procured? How important is this grenade for the Army's future needs?

Answer. It will be distributed as an item of ammunition much like the hand grenade, smoke grenade, and LAW. Distribution quantities in combat zones will be based upon the threat, mission, terrain, etc. The need was identified in the approved Required Operational Capability (ACN 69002) which was staffed Army-wide. Future war gaming "needs" involve foot-soldiers defeating certain threats to their survival (armored personnel carriers, fighting vehicles).

Question. How far had the XM78 engineering development program efforts gotten before research, development, test and evaluation funds in fiscal year 1983 were reallocated to other programs?

Answer. Engineering development tests were under way when the program funding was decreased due to higher priority Army projects. The Development Test II/Operational Test hardware delivery contract had been placed and hardware is still being delivered.

Question. Will the XM78 engineering development program be resumed? If so, when will it be rescheduled?

Answer. Current plans for resumption of the HAG effort are dependdent upon availability of funding.

Question. What additional steps would be necessary to complete engineering development program efforts if the program were rescheduled? How long would each step take?

Answer. If the program for XM 78 development should be resumed with appropriate funding, efforts could be expedited for completion of the program.

Question. Type classification of the XM78 was scheduled for December 31, 1983, prior to research, development, test and evaluation funding reallocation in fiscal year 1983. Could the grenade be type classified in time for the fiscal year 1984 procurement (prior to December 31, 1983, by Army regulations) without the reallocated funds? Please comment.

Answer. If rescheduled, completion of the local engineering development program would be required and this would basically involve the handle assembly proofing (drogue deployment, waterproofness, material specifications) and Technical Data Package identification. The time frame would be an additional 3-6 months. Type classification in calendar year 1983 is now high risk since Development Test II/Operational Test II testing would have to be rescheduled depending on test priorities. Barring unforeseen technical problems, resumption of Full Scale Engineering Development could result in a type classification within 9-12 months.

STOCKPILING EXPLOSIVES/PROPELLANTS

Question. Why does the Army think it is necessary to stockpile explosives/propellants at this time when it wasn't necessary in the past?

Answer. The primary reason for stockpiling is readiness. The explosives and propellants which the Army plans to stockpile would be the pacing components in a surge or mobilization situation. For example, the $7.9 million requested for stockpiling in the FY84 budget is for composition A-5. This explosive is the pacing component for producing the 155mm M483, and 8 inch M509 High Explosive Dual Purpose Projectiles, in a surge or mobilization situation.

Question. How many days of supply is the Army requesting?

Answer. In terms of FY83 mobilization requirements, the $7.9 million requested for FY84 will enable the Army to procure approximately [deleted] of Composition A-5, or approximately (d) of one month's mobilization requirement. The [deleted] represents about (d) of wartime stocks based on end item consumption at the D+6 level off rate.

Question. How much would it cost to procure a one year supply?

Answer. A one year mobilization supply of Composition A-5 is approximately [deleted] which would cost about $125 million. The 1983 and 1984 peacetime production of Composition A-5 averages approximately 8 million pounds per year, with an associated cost of approximately $16 million.

Question. Does the Army plan to rotate explosives/propellants in and out of the stockpile, i.e., will new ammunition end items production be supported from ongoing propellant/explosive production or from the stockpile.

Answer. Army does not plan to rotate explosives/propellants in andout of the stockpile; however, Army would rotate items before expiration of shelf life. Most explosives/propellants have an indefinite shelf life and can remain in storage indefinitely.

BIGEYE CHEMICAL QL

Question. In fiscal year 1983 the Army requested but was denied $10 million to facilitize a private contractor for the production of QL. In reviewing this request, the Army was asked

about Newport Army Ammunition Plant's potential for producing this chemical. In response the Army stated that among other things, QL was never produced as an end product at Newport, the Newport facility was stripped and is in a deteriorated condition, and significant cost and approximately 4 years would be required to make this an environmentally safe production facility. Please explain the statement that QL was never produced as an end product at Newport since QL produced at this plant is stored at Aberdeen Proving Grounds and is being used for Bigeye bomb research and development.

Answer. The Newport VX process is a four-step operation. Step 0 produces SW (Methyl phosphonous dichloride), Step 1 produces TR (Diethyl methyl phosphonite), Step 2 produces QL, and Step 3 results in VX agent. Steps 0 to 2 are continuous and Step 3 is batch. Each step can be operated separately and the product can be withdrawn and stored. In fact, Newport operated this way, during its production runs. This is how QL was withdrawn, stored, and is still available for use in the Navy Bigeye development program. Nevertheless, none of these intermediates were ever considered as end products. The plant was designd to produce VX agent as an end product, thus the statement cited in the question above is valid.

Question. Please explain the statement Newport was stripped since only the motors and pumps were removed and stored separately as would appear appropriate for any facility not being operated.

Answer. If stripping means removing equipment and using it elsewhere, stripping did not occur on a large scale. The basis for the question is unknown. Newport stripped all insulation from the various reactors and piping because insulation collects moisture and accelerates rusting. The equipment was painted for rust inhibition. Rail access to the plant has been interrupted. This is the only stripping that occurred as can presently be determined.

Question. Please explain the statement significant costs and approximately 4 years would be required to make Newport operable since the Army has now awarded a $1.9 million contract to determine the feasibility of rehabilitating it.

Answer. The statement is based on one of several empirical estimates which were made regarding the condition and rehabilitation costs/schedules over the years. Funding to run an engineering condition survey was not available until the latter part of 1982. Therefore, prior to that time condition estimates were made on the basis of engineering judgment. The study will for the first time provide the facts necessary to make an assessment and prepare estimates based on actual engineering data. In effect, the study will confirm or reject prior empirical estimates.

BIGEYE CHEMICAL QL

Question. Provide detail on the engineering estimates which projected the cost to rehabilitate Newport for QL production at between $29 and $62 million.

Answer. The costs cited above were probably taken from an 18 Mar 80 study by Uniroyal, Inc. at Army request. The $62 million figure represents an empirical estimate for the rehabilitation and replacement of the entire facility steps 0-3 to

make agent, including process and filling equipment, engineering, construction, and installation costs. The $29 million was based on this 1980 study, but considered only chemical process equipment for steps O-2 to make QL, buildings, some of the elements such as utilities, civil work, and installation. This empirical estimate was generated in Apr 82 by the Army in response to prior GAO questions.

Question. Provide details on the efforts ongoing to evaluate this facility's potential for producing binary chemicals and what other facilities are available for use in binary weapons production.

Answer. The engineering study currently in execution will assess the technical feasibility of operating Newport, recommend changes needed for the current regulatory environment, determine the condition of the Newport facility, and develop cost estimates for facility renovation/modernization and for QL production. The contract will be modified to assess the feasibility and cost of producing DC which could be used at Pine Bluff for DF binary production. The study will also assess, by a future modification, the feasibility of using an existing building at Newport for fill and LAP of the Bigeye bomb.

Other facilities available or having the potential for binary weapons production are the Pine Bluff Arsenal DF facility currently under construction, and PDW (Phosphate Development Works) which has produced DC in the past and which is being assessed for this purpose in a study awarded in Mar 83. These latter facilities pertain primarily to GB binary agent, except for PDW(Phosphate Development Works) which is also being assessed as a potential source of SW, the starting material in QL production as well as DC.

Question. Provide insight into the facilities located at Newport including their replacement cost and also Newport's employment level.

Answer. The 1980 Uniroyal report, an update of a 1971 report, is the only basis available for responding to this question concerning insight into facilities. It recommended the following:

1. Sixty percent of the original equipment must be replaced.
2. New building for step O-2, office, service, maintenance, laboratories, surety material/munition magazines.
3. Instrumentation and controls.
4. New perimeter lighting.
5. If VX agent is considered, surety compliance will require extensive changes, including storage facilities, fencing, and intrusion detection equipment.

Regarding employment: location of the QL manufacturing facility will create approximately 150 jobs. The type of chemical operators required are available in the area.

Question. How do the communities surrounding Newport feel about producing chemical weapons at Newport?

Answer. Newport is currently a depressed area. It is the opinion of the plant operators that the facility would be welcomed as a source of work. In the past, the surrounding community has been supportive and based on informal discussions with Newport plant operators this situation would probably remain the same.

Question. In response to questions during fiscal year 1983 hearings the Army stated that if a commercial source could not be

found for QL that Pine Bluff Arsenal would be the preferred location because of existing chemical expertise, utility and support base and other common requirements. What is the Army's current position on locating the QL facility at Pine Bluff Arsenal and the estimated cost?

Answer. The Army currently has an empirical estimate for locating the QL facility at Pine Bluff; is assessing the technical and economic feasibility of reactivating Newport for QL production, and is soliciting a commercial source for QL. These studies will have been completed by Jan 84 at which time the various options can be compared and a decision made as to the site. Therefore, the Army's position concerning Pine Bluff is that it is a viable option and will be compared with the other options in Jan 84. The procurement effort to obtain a refined estimate for a QL facility at Pine Bluff Arsenal (PBA) was halted as a result of FY83 Program Budget Decision to consider commercial sources.

Question. Please compare the amenities at Pine Bluff which would make it a preferred location for QL production to those at Newport Army Ammunition Plant.

Answer. Since Pine Bluff is an operating plant and Newport is in layaway, the following advantages accrue to Pine Bluff:

1. Support facilities, i.e., utilities, fire, police, medical, and other are in operating condition and more readily available.

2. A labor force is in place with probable flexibility for sporadic, intermittent production requirements.

3. With other mission activities, overhead will probably be less costly.

Question. The following estimated costs have been provided for facilities to produce QL over the last year.

1.	Private industry sole source	$10 million
2.	Pine Bluff Arsenal	58 "
3.	Newport Army Ammunition Plant	29-62 "
4.	Chemical Systems Laboratory (grass roots facility)	52 "
5.	Fiscal year 1984 budget request	34 "

Considering these many and varied estimates what credibility can be placed in the $34 million estimated request for this project?

Answer. The $34 million is not based on a final design or significant engineering data/criteria. It is based on information provided by industry, some of the bid information in the current solicitation, and could be optimistic.

Question. Reconcile the most significant variances in the cost estimates and their causes.

Answer. Private industry sole source - $10 million. No basis for this estimate was ever provided. It is assumed the company, Mobil, had or thought it had some pieces of the total QL process and would require only the adaptation of the missing parts. This was not borne out in the industry surveys conducted by the Navy and Army. Both indicated significant facilities would be required.

Pine Bluff Arsenal - $58 million. We are aware of $50 million and $88 million estimates. The former is the result of a sizing study by Chemical Systems Laboratory and is our best estimate for a QL facility. The latter includes the cost of the canister fill, LAP facility, and the QL plant.

Newport Army Ammunition Plant (NAAP) - $29-62 million. The $62 million is based on a 1980 Uniroyal study for rehabilitation/modernization of the VX facility in total. The $29 million was derived from this study and included rehabilitation of only the QL portion of the process, steps 0-2. Step 3 and the fill operations were excluded.

Chemical Systems Laboratory (CSL) - $52 million. This estimate is an Independent Government cost estimate developed by CSL funding for use in evaluating the commercial QL facility proposals. This estimate is still the most valid and complete to date, and will remain so until the ongoing NAAP and commercial estimates are developed by Jan 84. It must be emphasized that this estimate assumes a grass roots facility and that SW (methyl phosphonous dichloride) would be available from commercial sources (which was a valid assumption at the time the estimate was developed).

Fiscal year 1984 budget request - $34 million. Refer to response to the above question.

Question. What is the purpose of developing this many estimates for one facility and does this indicate poor planning, changing directions or uncertainty over whether this facility should actually be established.

Answer. The various cost estimates were developed at different times using various ground rules and in response to guidance and various requests. Higher authority directed the consideration of commercial sources and various options in the interest of obtaining QL at the least cost to the Government.

The range of estimates associated with the commercial facilities is based on the premise that equipment was in existence and available to produce QL. Upon further investigation this was not the case.

The Government estimates for a grass roots facility, whether located at Pine Bluff (PBA) or on commercial property, is in the $52 - 58 million range.

The estimates involving Newport AAP (NAAP) were not based on studies which investigated the condition of the existing equipment since funds were not available to conduct a study in such detail. Additionally, NAAP was excluded from consideration under the Integrated Binary Facility concept after PBA was selected as the designated site.

The findings by the Army and Navy to date indicate a facility to produce QL must be established by the Government. Commercial firms are not willing to commit investment capital to produce QL due to the highly sensitive nature and uncertainty in obtaining funding to produce binary munitions.

Question. If funding to produce Bigeye bombs is not provided in fiscal year 1984 could this facility be deferred to fiscal year 1985 when its location and more valid cost estimate on which to make funding and programming decisions would be available?

Answer. In order to have QL available to fill when the first Bigeye bombs are available (based on the schedule being pursued), it is required that the QL facility project remain in FY84. The phase I of a commercial study contract necessary to construct a facility will be completed 2nd quarter of FY84. If deferred, additional FY84 funding would have to be provided to maintain the commercial contractors effort and interest in establishing this facility. Commercial firms may be reluctant to tie up the use of real estate on which the QL facility would be

located if the Government delays the program. There is minimal profit in establishing the facility, the profit is in providing the chemical.

Question. Is QL considered the pacing item for Bigeye bomb production and if not what is?

Answer. Based on current program schedules QL is the critical path pacing item for Bigeye bomb production.

BIGEYE LOAD, ASSEMBLE AND PACK

Question. Pine Bluff Arsenal was the original location selected for the Bigeye, load, assemble and pack facility and a military construction project was requested in fiscal year 1983 to construct a building to house the equipment planned for this facility. Pine Bluff's selection apparently was predicated on the plan to also produce QL at this location. Is this Arsenal still the favored location for this Bigeye production facility or would Newport hold an advantage because of the existing building especially in the event QL is produced in private industry?

Answer. Pine Bluff Arsenal (PBA) is still the currently favored site for Bigeye bomb fill if the QL is purchased from industry, since PBA is currently operating and has an available work force and required support facilities. Since PBA will have the production mission for the M687 binary shell, common assets such as work force, and security could be utilized.

Question. What is the status of the military construction project planned at Pine Bluff Arsenal to construct a building for the Bigeye production and is the $7.9 million of the $18.2 million provided by Congress required whether or not the building is constructed?

Answer. The final design review for the MCA project is scheduled for Apr 83. The $7.9 million is for site clean-up and the establishment of a hazardous land fill at Pine Bluff Arsenal. This clean-up is required for the site of the Integrated Binary Munition Production Facility. The portions of the site used for the Bigeye bomb do not require clean-up, but a portion of the land fill may be available for operation of the facility. This site was targeted for clean-up whether or not the building is constructed, to alleviate the contamination in this area.

Question. Provide rationale for requesting funds to construct a building at Pine Bluff Arsenal prior to obtaining approval for the equipment to be placed in the building or even before a final design for the equipment is available.

Answer. The goal of establishing the earliest fill and LAP capability for the Bigeye bomb can be achieved by having the building construction precede the equipment project. With an FY83 construction, the fill facility would be available Dec 85; with an FY84 construction, the fill facility would be available Mar 86. Earlier building availability allows earlier installation of the equipment.

The final design for the fill and LAP equipment is not required for the building design or construction, since the building being provided will allow flexibility for equipment installation by omitting the production area flooring and not providing final utility hook-up.

The equipment design information developed has provided adequate equipment definition so as to allow building design and construction with a minimum of installation problems.

Question. About 68 percent of this project's estimated cost is attributable to equipment installation. Provide major cost elements which comprise this 68 percent.

Answer. The cost estimate of 68 percent is a preliminary cost estimate. This project is higher than the average Load, Assemble and Pack (LAP) project, since additional precautions and equipment are required to fill QL which is considered a hazardous industrial chemical. Additionally, the construction project is providing a building shell which leaves this project with the flexibility and cost of installing the flooring, providing utility tie-ins and some of the ventilation tasks, which are normally not handled by this type of project.

Question. Will this 68 percent allocation to equipment installation hold any validity if the building at Newport is used for Bigeye production?

Answer. The Newport Army Ammunition Plant (NAAP) costs for equipment installation are not available. This building has flooring in place which may have to be removed to install the required drains and utilities. The ventilation may have to be modified to allow the filling of a hazardous chemical. Major changes in the building may be required which involve the additional cost of removing the existing equipment. The existing NAAP renovation contract is being modified to include the development of a cost estimate for the renovation and modification of the NAAP building for the fill of Bigeye bombs.

Question. Does the average Production Base Modernization project involve such a large allocation of cost to equipment installation or is this project unique in this regard?

Answer, This project is unique and higher than the average Load, Assemble and Pack (LAP) Project, since additional precautions and equipment are required to fillQL which is considered a hazardous industrial chemical. Additionally, the associated construction project is providing a building shell which leaves this project with the flexibility and cost of installing the flooring, providing utility tie-ins and some of the ventilation tasks, which are normally not handled by this type of project.

IPF, BINARY CHEMICAL PRODUCTION

Question. The procurement of M687 projectiles and prove-out of the DF facility depends on the availability of the chemical DC. What reasons did the supplier of research and development quantities give for losing interest in providing production quantities?

Answer. The Ethyl Corporation which supplied R&D quantities and planned to supply the methylphosphonic dichloride (DC) for production supplied the following information:

Ethyl's evaluations showed that an alternative route to DC would be considerably less costly than the Ethyl ,their. route. Ethyl would start with no special position in this lower cost route. In fact, other chemical producers could almost certainly produce DC at lower cost than Ethyl if they could use existing equipment.

Analysis of the DoD Procurement regulations indicates that the expected profit on this project is below Ethyl corporate guidelines, especially when considering the amount of technical and managerial effort that would have to be devoted to the

program and the significant risk that the program will not receive continued long-term funding.

Question. What portion of the M687's cost would be attributable to the DC if procured in conjunction with it and is the approach now being taken less cost effective?

Answer. The cost to procure DC on a supply type contract with its extremely long lead times (2 to 2½ years) at $17.50/lb of DC would represent approximately 14 percent of the total cost per round. Note: This long lead time for DC is the central issue dictating the change of direction to procure DC under a separate facility contract so that the availability of DC would not become the critical path in achieving IOC for the M687 projectile.

The cost effectiveness of the approach now being taken can be determined in Mar 84 when the studies of the Government and commercial options will be completed. Facilities and operating costs will be available at that time for evaluation. The decision wil be based on the combination of these costs and the number of pounds of DC to be procured.

Question. What other items needed to produce the M687 are not readily available and what approach is the Army using to procure these items?

Answer. The other items needed to produce the M687 are metal parts, canisters (metal and plastic), and the other binary component, OPA (alcohol/amine mixture). The Army has an FY82 project at Louisiana Army Ammunition Plant (LAAP) for metal parts, a commitment from Phillips Chemical Company for plastic canister parts, and OPA is readily available from industry. However, an 18 month lead time is forecast for the OPA filled canister because of the possibility fill equipment to load the OPA into canisters may have to be procured by the supplier.

Question. Since alternative locations for DC production are still being evaluated and only early cost estimates for a DC facility are available, would it be more appropriate to fund this project in fiscal year 1985?

Answer. No. The Phosphate Development Works (PDW) and Newport Army Ammunition Plant (NAAP) studies will be completed by Jan 84. If funds are available, and either of these options are selected in Mar 84, work on rehabilitation or procurement can begin as soon as the appropriate contracts are awarded. At PDW this could mean a facility available at least one year before a similar effort funded for FY85. Similarly, if NAAP is selected, the existing QL contract for rehabilitating NAAP could be used as a means of expediting the DC facility work, resulting in the same gain as above for PDW. The commercial option is difficult to assess because the processes to be recommended by the contractors are unknown. However, based on our current schedule for the commercial solicitation, if the decision in Mar 84 is made to go commercial, the contract option for design and build can be immediately exercised. Delaying the project to FY85 will result in a slip of one year to Sep 86, the availability date for a DC capability.

Question. In the event this Project's cost exceeds $25.2 million requested, will the Army reprogram funds into the Production Base Modernization and Expansion program or will trade-offs be made with other projects included in the fiscal year 1984 program?

Answer. The project may be executed on a multi-year basis. In the eventuality of a cost significantly exceeding $25.2

million, additional funds to complete the project would be requested in FY85. This decision would be made in FY84 when the project costs had been firmly established at the completion of the studies.

Question. It appears a production base for the chemicals used in the M687 was established for the production of this round's predecessor. For example, the earlier round was filled with GB and the Phosphate Development Works (PDW) supplied the DC used to produce this chemical. Why didn't the Army place a higher priority on maintaining the existing base when the M687's development was approved and further assume this existing base could be used when and if production funds for the M687 were provided?

Answer. DC production at PDW was completed in 1957. The Material Need for M687 was approved in 1972. From 1972 to 1981, the availability of DC was understood to be a commercial industrial item with a confirmed source. Thus, no urgent requirement existed for the extraordinary effort needed to maintain PDW in standby.

Question. Provide a chronology of events including the date the previous round was last produced, when the Phosphate Development Works was last operated, when the M687's development was approved, and other pertinent milestones to place the overall program in perspective.

Answer. The chronology follows:

1. Decision to develop a binary projectile, Aug 67.
2. Date previous round, M121A1, 155mm Projectile GB last produced - last M121A1 Contract let Nov. 68.
3. Phosphate Development Works last operated - 1957.
4. M687 Development approved - MN(ED) approved 7 Apr 72.
5. M687 Binary Projectile Type Classified - 29 Nov 76.
6. M687 DF facility funded - Jul 81 (late start FY81).
7. M687 DF facility contract awarded - 9 Sep 82.
8. M687 DF facility available - Feb 85.
9. Commercial DC supplier withdrew - Dec 81, May 82.
10. FY83 Procurement funds deleted by Congress - 16 Aug 82.
11. Decision to proceed with commercial DC solicitation - 30 Sep 82.
12. DC study contract award for NAAP - Jan 83.
13. PDW DC study contract award - 3 Mar 83.
14. Commercial DC study contract schedule award - Sep 83.
15. Decision date concerning PDW, NAAP, Commercial -Mar 84.
16. DC facility available (scheduled) - Sep 85.

8 INCH PROJECTILE M509A1 MODERNIZATION PROJECT 5843215

Question. Please explain in detail why this project was eliminated from the fiscal year 1983 budget after it was approved by Congress?

Answer. The Army had every intention of replacing the drill and pin method of attaching the projectile base via the threaded base method. During the Product Improvement Program (PIP), which was launched to provide engineering design for the threaded base, delays were encountered and completion rescheduled until first quarter FY84. Since this would be beyond the obligation period

for FY83, the Army decided to delay the project until the PIP was completed. It was the judgment of the Army that, as the threaded base project was not executable in FY83, it would be submitted as an FY84 project, and the FY83 funds used for other needs. Also, the plants involved, Scranton AAP and Norris, have indicated they could make the initial production items of the threaded base by modifying existing equipment and replacing that equipment when the project is approved.

Question. What were the fiscal year 1983 funds for this project, as well as the other projects which comprise the total $15.5 million reduction, used for? Please indicate individual projects and associated dollars.

Answer. The list follows:

		Congress Approved	Current	
2202	SCAMP	8.090	13.218	+ 5.128
0020	FASCAM MPTS	14.060	17.631	+ 3.571
3142	MSAAP	15.830	17.667	+ 1.837
0061	Stub Base	19.900	21.587	+ 1.687
2206	105/120 Train	39.500	41.140	+ 1.640
0025	105/120 KE	17.010	18.457	+ 1.447
4871	FASCAM GATOR & LAP	3.260	3.624	+ .364
				15.674

Question. What funds, if any, were provided for the M509A1 threaded base metal parts project in fiscal year 1983?

Answer. $8.800 million was appropriated for the Threaded Base project, but, as previously mentioned, nothing was spent for that purpose.

Question. Does the Army anticipate similar substitutions in the fiscal year 1984 budget? If so, what projects have been identified as possible additions as well as candidates for elimination, if necessary?

Answer. At this time, there are no planned eliminations/substitutions which affect the FY84 projects. One of the two Nitroglycerin (NG) Facilities (NG2) at Radford AAP was severely damaged in an explosion in June 1982. Due to design limitations, the project could not be included in the FY84 budget submitted to Congress. Currently, the manually operated (NG) facility at Radford AAP is the only operable plant in the United States. It is imperative that the destroyed facility be replaced, or an incident at the current producing plant (NG1) would leave this country without a Nitroglycerin capability. The NG2 project is now under design and is estimated to cost $37 million. Efforts are being made to secure excess FY83 or FY84 funds from other sources for this high priority unfunded requirement.

Question. Since this project was eliminated from the fiscal year 1983 budget by the Army and others put in its place, why should Congress approve it in fiscal year 1984? Might it face the same fate in fiscal year 1984 as it did in 1983?

Answer. The facility to be provided by this project is absolutely essential. The Army is committed to the threaded base concept.

The Threaded Base project will be executed in FY84 as the Army has confidence that the PIP will be successfully completed.

Question. If the fiscal year 1984 project is funded what is the target date for getting first production from the Threaded Base plate facility? What is the target date for getting production of threaded base plates in sufficient quantities to support load, assemble and pack on a 1-8-5 shift basis?

Answer. Provided the FY84 project is funded, 18 to 24 months would elapse prior to the first production run on the new threaded base facility. The LAP effort can be supported on a 1-8-5 shift basis with current in-house machines which can be adopted on an interim basis. This would take approximately four months.

Budget Activity 1 - Tactical and Support Vehicles

Question. For all items in Budget Activity 1 currently under a multi-year contract of any type, provide the following information by budget line: Identify for each contract year the minimum (BEQ) contractually required quantity, the option quantities for year, the cumulative total through that year, the actual quantities procured or proposed for procurement in that year, and the recurring costs as negotiated and signed for the FY 1983 contract.

Answer. The accompanying chart reflects the multiyear contract information required for Budget Activity 1 items. In order to develop the ceiling option quantities available, other Service customer's basic contract quantities are displayed. The proposed procurement quantity for the Army represents the optimistic quantity predicated on favorable inflation and maximum prompt payment discounts, where applicable. The recurring costs are not identifiable since contract cost include amortized non-recurring costs.

Question 92

	79	80	81	82	83	84	85	86	87
HMMWV Bud Line 16									
Minimum BEQ									
Army					1321	4202	9561	11159	12842
USMC					1013	2978	3123	4441	1641
USAF					-	1056	744	584	308
Total BEQ					2334	8236	13428	16184	14791
Option 100%					2334	8236	13428	16184	14791
Total Qty					4668	16472	26856	32368	29582
Cummulative					4668	21140	47996	80364	109946
Procured (Army Only)									
Actual					1321				
Proposed					1363	4831	10403	12482	14899
CUCV Bud Line 18									
Minimum BEQ									
Army				2791	11891	13065	20854		
USMC				898	-	1142	-		
USAF				232	525	1634	379		
Total BEQ				3921	12416	15841	21233		
Option 100%				3921	12416	15841	21233		
Total Qty				7842	24832	31682	42466		
Cummulative				7842	32674	64356	106822		
Procured (Army Only)									
Actual				2791	11891	-	-		
Proposed				3033	13618	15346	24082		

Question 92 Cont.

	79	80	81	82	83	84	85	86	87
Truck 5T Bud Line 20									
Minimum BEQ									
Army			526	1067	2062	1226	600		
Other			1422	1185	843	1101	1362		
Total BEQ			1948	2252	2905	2327	1962		
Option 100%			1948	2252	2905	2327	1962		
Total Qty			3896	4504	5810	4654	3924		
Cummulative			3896	8400	14210	18864	22788		
Procured (Army Only)									
Actual			950	2534	-	-	-		
Proposed			971	3996	4939	4499	4363		
Semitrl M871 Bud Line 5									
Minimum BEQ	529	427	572	412	395				
Option 100%	529	427	572	412	395				
Total Qty	1058	854	1144	824	790				
Cummulative	1058	1912	3056	3880	4670				
Procured									
Actual	543	427	1144	721	-				
Proposed	543	427	1144	721	200				

Question 92 Cont.	79	80	81	82	83	84	85	86	87
Truck 10T Bud Line 21									
Oshkosh Contract			250	322	530	621	417		
Minimum BEQ			625	805	1325	1552	1042		
Option 250%									
Total			875	1127	1855	2173	1459		
Cummulative			875	2002	3857	6030	7489		
Procured			615	1270					
Actual			615	1270	2134	1008	1849		
Proposed									
M.A.N. Contract									
Minimum BEQ			10	71	96	42			
Army			5	33	24	55			
USAF									
Total BEQ			15	104	120	97			
Option 0%			-	-	-	-			
Cummulative			15	119	239	336			
Procured (Army Only)			10	71	96	-			
Actual			10	71	96	42			
Proposed									
HEMAT Bud Line 15			72	66	84	131	127		
Minimum BEQ			-	-	-	-	-		
Option 0%									
Total			72	66	84	131	127		
Cummulative			72	138	222	353	480		
Procured			72	66					
Actual			72	66	109	150	269		
Proposed									

Budget Line 4 - Rough Terrain Motorcycle

Question. What is the proposed basis of issue for the motorcycle? Will each motorcycle have a dedicated driver? If so, will this be his full time job?
Answer. The Basis of Issue Plan (BOIP) is currently being developed by the U. S. Army Training and Doctrine Command (TRADOC). The proposed BOIP plans for the following distribution of motorcycles:

Type of Unit	Total Qty
Engineer	715
Field Artillery	554
Signal	430
Armor	1729
Transportation	105
Support	568
Air Defense	222
Infantry	537
Quartermaster School	123
Adjutant General	223
Combined Arms Center	87

It is planned that, each motorcycle will not have a dedicated driver. Drivers will be designated using existing personnel authorized by current tables of organization and equipment. These personnel will be trained and receive an additional skill identifier.

Question. Will the motorcycles replace any existing one quarter ton or five quarter ton vehicles? If not, why not?
Answer. Yes, it is expected to replace 160 1/4 ton Jeeps and 154 1/4 ton trailers.

Question. In the roles of communications, reconnaissance and rear security, how will communications be maintained with people mounted on motorcycles?
Answer. Approximately two-thirds of the motorcycle fleet will be equipped with radio racks which will accommodate existing man portable radios. The driver will be able to communicate via earphones and microphones mounted inside his helmet.

Question. Will the Army require users of motorcycles to be specifically trained for cross country motorcycle driving? Will special protective equipment be purchased and issued?
Answer. Yes, Users will be trained as cross country drivers as the expected terrain profiles in usage areas do not include a preponderance of hard surfaced roads. The only item of special protective equipment under consideration at this time is a motorcycle style helmet.

Question. Assuming that these motorcycles have gasoline engines, how will they be refueled when all other vehicles will all have diesel engines?
Answer. The Army's goal is to have an all diesel fleet. However, the rate at which new diesel powered vehicles are procured to replace existing substitute assets, such as M151 1/4 tons and M880's, is such that a gasoline requirement will exist until the early 1990's, though this requirement will diminish considerably as this time approaches. It is planned that

motorcycle fuel requirements will be met as a standard "package product" when all bulk fuel haul has transitioned to diesel fuel, Examples of "package products" are engine oil, grease and hydraulic fluid.

QUESTION. Will this be a competitive procurement. If not, why not?
ANSWER. Yes, it will be a competitive procurement.

Question. What kind of motorcycle training will be given in the training base? Will any military construction be necessary to support this training?
Answer. Initial operator and maintenance training will be provided by the contractor. This will be followed by a New Equipment Training (NET) Team from the U.S. Army Tank Automotive Command. The Armor School is also developing an exportable operator training course for use at the local installation level. Operator training is tailored to the unit's mission. Military construction will not be necessary to support the training.

Question. Is this procurement an off-the-shelf one? If not, what modifications are proposed and what is the cost of those modifications?
Answer. Yes, it is a non-developmental item (NDI) and will be procured off-the-shelf with minor modifications. The modifications include the addition of an equipment/radio rack, a scabbard for the M16 rifle, a document case and radio cabling. These modifications are expected to cost approximately $325.00 per vehicle.

Budget Line 17 - Fast Attack Vehicle

Question. Provide copies of P40, P22, P22A and associated exhibit for this budget line.
Answer. Copies of requested P-forms are attached.

REPORTS CONTROL SYMBOL DD- COMP(AR) 1092	BUDGET ITEM JUSTIFICATION SHEET	DATE Jan 1983
APPROPRIATION/BUDGET ACTIVITY Other Procurement, Army/ Activity 1-Tactical and Support Vehicles	P-1 ITEM NOMENCLATURE FAST ATTACK VEHICLE (D15600)	

	FY 82	FY 83	FY 84	FY 85	FY	FY	FY
QUANTITY			138				
COST (In Millions)	$	$	$ 4.7	$	$	$	$

DESCRIPTION: A 4 wheel two man, high cross country speed, lightweight highly maneuverable desert/off road gasoline/diesel powered vehicle. Comes in two versions-one equipped with an anti-tank missile system and the other with a dual purpose anti-BMP/personnel weapon.

BASIS FOR BUDGET YEAR REQUEST: To support the 9th High Technology Light Division, Light Attack Battalion, fielding requirements.

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DEPARTMENT OF DEFENSE

[illegible] objection to release

MAR 11 1983

[illegible] REVIEW, ASSD, HQDA

P-1 Shopp List Item No.	Page No.	
17	1 of 4	EXHIBIT P-40

REPORTS CONTROL SYMBOL DD - COMP(AR) 1092	PROGRAM COST BREAKDOWN	DATE Jan 1983
APPROPRIATION/BUDGET ACTIVITY Other Procurement Army/Activity 1-Tactical and Support Vehicles	P-1 ITEM NOMENCLATURE FAST ATTACK VEHICLE (D15600)	

(TOTAL COST IN THOUSANDS OF DOLLARS)

ELEMENT OF COST	IDENT CODE	FY 82 QTY	FY 82 TOTAL COST	FY 83 QTY	FY 83 TOTAL COST	FY 84 QTY	FY 84 TOTAL COST	FY 85 QTY	FY 85 TOTAL COST
			$		$		$		$
1. Vehicle	B					138	3,599		
a. Utility, w/TOW(D15601)						(69)	(1,800)		
b. Utility, w/40mm Grenade Launcher (D15602)						(69)	(1,799)		
2. Engineering Change Orders							138		
3. Government Engineering							210		
4. Contract Engineering							200		
5. Product/Quality Assurance							60		
6. Testing							243		
7. Documentation							250		
TOTAL PROGRAM COST						138	4,700		
PROGRAM UNIT COST							34.1		

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	17	2 of 4	EXHIBIT P-22

PROCUREMENT HISTORY & PLANNING

DATE: Jan 1983

Appropriation/Budget Activity: Other Procurement, Army/ Activity 1- Tactical and Support Vehicles

P-1 ITEM NOMENCLATURE: FAST ATTACK VEHICLE (D15600)

LINE ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE	CONTRACTED BY	P/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	SPECS AVAIL NOW	SPEC REVISIONS REQUIRED	IF YES, WHEN AVAILABLE
FY 84	UNKNOWN	A2S-FFP	TACOM	Dec83	Jul84	Feb85	138	26,080	YES		

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REMARKS:

P-1 SHOPP LIST ITEM NO. 17 PAGE NO 3 of 4 EXHIBIT P-22a

CLASSIFICATION

REPORTS CONTROL SYMBOL DD-COMP (AR) 1092	"CODE B" ITEM DESCRIPTION (EXHIBIT P-19)	DATE Jan 1983
APPROPRIATION: Other Procurement, Army	P-1 ITEM NOMENCLATURE	
ACTIVITY: 1 - Tactical & Support Vehicles	FAST ATTACK VEHICLE (D15600)	

1 CURRENT DEVELOPMENT AND TEST STATUS:

		Current	Schedule Date Last Reported	Reason for Delay
Dev Test & Eval (DT&E)	Plan/Actual	N/A		
Initial Oper Test & Eval (IOT&E)	Plan/Actual	N/A		
Oper Test & Eval (OT&E)	Plan/Actual	N/A		
Avail Date of Tech Data Pkg (TDP)	Plan/Actual	N/A		

2 ESTIMATED DATE OF APPROVAL FOR SERVICE USE:

3 EQUIPMENT ITEM(S) TO BE REPLACED: None

4 EXTENT OF IMPROVEMENT OVER ITEM (S) EQUIPMENT TO BE REPLACED: N/A

5 DEVELOPMENT CONTRACT INFORMATION:

RDT&E FUNDING PROFILE ($ MIL)

CONTRACTOR NAME	LOCATION	COMPONENT	THROUGH PYR	CYR	BYR	BEYOND BYR
TO BE DETERMINED				.48		
MISC				1.02		
TOTAL RDT&E FUNDING				1.5		

6 REMARKS:

RDT&E FUNDS REQUIRED TO EVALUATE AVAILABLE COMMERCIAL VEHICLES, CONDUCT COMPETITION AND AWARD PRODUCTION CONTRACT.

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CLASSIFICATION 3

P-1 SHOPP. LIST ITEM NO.	PAGE NO.
17	4 of 4

APPROVED FOR RELEASE BY THE DIRECTORATE FOR FREEDOM OF INFORMATION AND SECURITY REVIEW (DASD-PA)
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Budget Line 17 - Fast Attack Vehicle

Question. What is the total Army procurement program for the Fast Attack Vehicle? What is the quantity and dollar procurement profile by year for the program?
Answer. The Army's FY 84 budget request includes only 138 vehicles for $4.7 million. The FY 84 Budget Initial Issue Quantity (IIQ) was 138. The current Initial Issue Quantity based on the evolution and validation of the HTLD design and the plan to convert one National Guard division to the HTLD configuration is currently being refined in order to establish the Army Acquisition Objective which will determine future buys.

Question. Does the Army plan to procure the 140 leased fast attack vehicles currently at Ft. Lewis. If so, where is the procurement money in the Budget? If not, why not?
Answer. If a decision is made to procure the surrogate vehicles at the end of the 2nd year of the lease, they will be procured with Operations and Maintenance, Army, Appropriation Funds. The loan agreement for the FAV's contains a provision which accords the US Army an opportunity to obtain title to the vehicles at the conclusion of the loan period at a cost of one dollar per vehicle. Therefore, it is not necessary to budget procurement dollars for this procurement action. There are currently 120, not 140, leased Fast Attack Vehicles (FAV) AT Ft. Lewis.

Question. Which National Guard Division is scheduled to receive the fast attack vehicle? If it is not known, when will this decision be made?
Answer. A firm decision has not been made as to which ARNG Division will be designated as a High Technology Light Division. Therefore, the unit to receive the Fast Attack Vehicle has not been identified. It is expected that the final decision will be made during FY 1986.

Question. Briefly describe the support concept to include depot support plan for the Fast Attack Vehicle.
Answer. The concept is for fielded vehicles to be supported through the standard military system for Tactical Vehicles. All repair parts and special tools will be stocked in the wholesale supply system by National Stock Number. Operation, maintenance and repair parts information will be supplied by DA Technical Manuals. New equipment training will be provided initially by TACOM with subsequent unique training requirements, if applicable, accomplished by The Training and Doctrine Command (TRADOC). It will be necessary to provide for interim support until all parts and tools can be integrated into the standard military support system. The contractor will furnish a "Recommended Buy List" to assure that as a minimum the Authorized Stockage List/Prescribed Load List (ASL/PLL) and mission essential items are identified. The Army will then procure these items under a Basic Order Agreement (BOA) with the contractor supporting early fielding of the Fast Attack Vehicle.

Question. Is the Fast Attack Vehicle a totally off-the-shelf purchase? If not, what is the cost of the modifications that are made to it and what are they?

Answer. The Army is currently conducting a Market Survey to gather data which, when coupled with the user's need, will form the basis for developing the Acquisition Strastegy. The Market Survey will be completed the later part of May 83. The current budget is predicated on the premise that the contractor will provide a vehicle that will meet the requirement without significant modification. Allowances will be made for preplanned product improvements in such areas as vehicle survivability enhancement. No manufacturer currently produces commercially available vehicles that will meet the Army requirements without adding equipment for militarization. Such was the case with the 120 surrogate Fast Attack Vehicles currently on lease by the High Technology Test Bed at Ft. Lewis, WA. Those vehicles were delivered as off-the-shelf items. In order to convert them into military fighting vehicles, the following modifications had to be made:

Modification	Hardware Cost Per Vehicle
a. Intercom System (added)	$ 720.00
b. Nerf bar Storage Racks(2 ea) (added)	250.00
c. Universal Storage Rack(added)	220.00
d. Black Out Drive System(added)	150.00
e. 24V Electrical System Converter	120.00
f. Weapons Mount (TOW/MK-19)	135.00
g. M-16 Weapons Scabbards (2 ea)	25.00
h. Additional Battery Mounts	16.50
i. Gravel Screen for driving lights	7.00
j. Rear View Mirror (added)	5.00
	$1,648.50

Question. Will this be a competitive procurement? If not, why not?
Answer. Yes, this procurement will be competed.

Budget Line 18 - Commercial Utility Cargo Vehicle

Question. Why, for an essentially standard off-the-shelf commercial vehicle is $3 million required for engineering changes for the contractor? What are some of the changes that are being proposed to this vehicle?
Answer. The $3 million dollars budgeted for engineering changes in FY 1984 is to cover the estimated cost of the following items:

1. Radial tires (large size on some vehicles)
2. Regulator, 100 AMP
3. Standard Test Equipment-Internal Combustion Engine (STE-ICE)
4. Transfer Case for the Shelter Carrier
5. Relocation of the radio rack
6. Camouflage paint

Budget Line 18 - Commercial Utility and Cargo Vehicle

Question. Describe the prompt payment provisions of the CUCV multi-year contract. How many additional vehicles have been bought in FY 82 and 1983 through this provision? In addition to

the 15,346 vehicles in 1984, how many additional vehicles will this provision buy in 1984?
Answer. The Prompt Payment provisions of the CUCV Multi-Year Contract are as follows:

Discounts are earned for each vehicle when payment is made to the contractor within 20 calendar days after date of delivery or after the date the correct invoice or voucher is received by the Government, whichever date is later.

At this time, there have not been any additional vehicles procured in 1982 or 1983 using funds earned through the prompt payment provision because delivery of the FY 82 vehicles will not begin until August 1983 and delivery of the FY 83 vehicles will not begin until December 1983. The planned quantity of 15,346 includes 1,104 vehicles projected to be procured from the FY 84 prompt payment discount dollars.

Budget Line 20 - Five Ton Truck

Question. For FY 1982 and FY 1983 identify the actual charges incurred for "engineering changes" and contractor engineering". Justify why the contractor engineering charges are so large relative to the government engineering charges each year.
Answer. Actual charges for engineering changes have not yet been incurred for the FY 82 and FY 83 program years. With respect to contractor engineering, an amount of $3,277,910 has been obligated for FY 82. For FY 83 an amount of $3,576,822 has been obligated. Charges for contrator engineering are significantly greater than the government engineering charges due to the differences in services performed. In this case, the government contracts for performance of those peculiar specialized engineering activities necessary to perform the program requirement. The service areas covered include: drawing update, engineering change control, repair parts provisioning, preparation of manuals and required test support. The government's effort is principally one of surveillance, management control and such interface relationships as are necessary for program performance. The foregoing activities are performed through a small direct-charge management organization with functional specialty assistance being furnished by the command organization without direct charge to the program.

Question. In relation to all other procurement programs in Budget Activity 1 justify why the budget for engineering changes for the five ton truck is so much larger than any other program.
Answer. The reason for the larger budget on the 5 ton for engineering changes is a function of the more complex nature of a military designed vehicle without a commercial counterpart as found in other Budget Activity 1 truck programs. The Army has identified changes which are needed on this vehicle. They include; chemical agent resistent coating (CARC), camouflage paint, and a number of Initial Production Testing fixes for which the Army is responsible.

Question. Why are the engineering charges for the two AM General Programs (the HMMWV and the five ton program) higher as a percentage of the annual budget request than any other lines in Budget Activity 1?
Answer. Engineering charges for a vehicle system are dependent on the complexity of the system and the program type. The

majority of the programs in the budget in Tactical and Support Activities are non-developmental programs. The HMMWV and 5 Ton Trucks (both AM General programs) are more complex military designs with no commercial counterpart. Therefore, the cost of government configuration control and required design and/or engineering changes directed by the Government are generally more extensive.

Budget Line 16 - High Mobility Multipurpose Wheeled Vehicle

Question. Provide updated copies on your P-22 and P-22A exhibits reflecting the results of contract negotiation and source selection on this program.
Answer. The updated copies of P-22 and P-22A reflecting the results of the contract award are attached:

REPORTS CONTROL SYMBOL DD - COMP(AR) 1092	PROGRAM COST BREAKDOWN	DATE 14 Apr 83
APPROPRIATION/BUDGET ACTIVITY: OPA-I	P-1 ITEM NOMENCLATURE: HMMWV	

(TOTAL COST IN THOUSANDS OF DOLLARS)

ELEMENT OF COST	IDENT CODE	FY QTY	FY TOTAL COST	FY QTY	FY TOTAL COST	FY QTY	FY TOTAL COST	FY QTY	FY TOTAL COST
			$		$		$		$
1. Hardware	A			1363	27035	4831	115788	10403	266998
a. Weapon Carrier(D15401)				(269)	(6220)	(1545)	(37798)	(853)	(22348)
b. Utility (D15404)				(1057)	(19941)	(908)	(18249)	(4525)	(97065)
c. 2 Ltr Amb (D15405)				(2)	(73)	(104)	(4034)	(100)	(4154)
d. 4 Ltr Amb (D15406)				(2)	(69)	(260)	(9480)	(1564)	(61065)
e. Util Armament (D15407)				(34)	(732)	(1769)	(40304)	(3139)	(76589)
f. GLLD (D15408)				-	-	(66)	(1469)	(60)	(1456)
g. Squad Carrier(D15409)				-	-	(179)	(4427)	(162)	(4321)
2. Engineering Changes					1351		5741		13242
3. Soft Top Kits					466		-		-
4. Ballistic Stations					1231		10140		9749
5. Ambulance GFE					16		1540		7541
6. Special Tools					685		545		570
7. Government Engineering					342		804		840
8. Prod/Qual Assurance					134		138		144
9. Testing					836		570		84
10. Contractor Engineering					-		-		1800
11. Tech Data Package					6066		-		-
12. Documentation					164		172		180
13. Training Aids					267		238		-
14. Loading Charges					7		24		52
TOTAL PROGRAM COST					38,600		135,700		301,200
PROGRAM UNIT COST					28.320		28.089		28.953

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	P-1 SHOPP LIST ITEM NO.	PAGE NO.	
3			EXHIBIT P-22

REPORTS CONTROL SYMBOL
DD-COMP(AR) 1092

PROCUREMENT HISTORY & PLANNING

DATE
14 Jan 83

Appropriation/Budget Activity
OPA/ACT 1 - Tactical and Support Vehicles

P-1 ITEM NOMENCLATURE
High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) (D15400)

LINE ITEM/FISCAL YEAR	CONTRACTOR	CONTRACT METHOD AND TYPE	CONTRACTED BY	P/R RELEASE DATE	AWARD DATE	DATE OF FIRST DELIVERY	QTY	UNIT COST	SPECS AVAIL NOW	SPEC REVISIONS REQUIRED	IF YES, WHEN AVAILABLE
FY83	AM GENERAL	A2S-FPEPA 1 MY 5	TACOM	Oct 82	Mar 83	Apr 84	1361	19835	YES	NO	
					Jan 84	Jan 85	4831	23968			
FY84		2 MY 5	TACOM		Feb 85	Jan 86	10403	25665			
FY85		3 MY 5	TACOM								

REMARKS:

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P-1 SHOPP LIST ITEM NO.	PAGE NO.	Exhibit P-22a

REPORTS CONTROL SYMBOL DD-COMP (AR)1092

PRODUCTION SCHEDULE (EXHIBIT P-21)

DATE 13 APRIL 1983

APPROPRIATION/BUDGET ACTIVITY OPA/ACTIVITY 1-TACTICAL AND SUPPORT VEHICLES

P-1 ITEM NOMENCLATURE TRUCK, 10 TON 8X8 (OSHKOSH TRUCK PROGRAM)

FACILITY NO.	U/M	S E R V	PROGRAM QUANTITY FY	FY	FY	FY	FY	FY	ACCEP PRIOR TO 1 OCT.	BALANCE DUE TO ENTER 1 OCT	FISCAL YEAR 1982 / CALENDAR YEAR 1983 UNIT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	EA	A	SCHEDULE - FY82						** 8	122							81	74	169	144	157	148	155	135	120	122
	EA	A	ACTUAL - FY82								7	1			1	61	17									
	EA	A	SCHEDULE - FY83							530																

FISCAL YEAR 1984 / CALENDAR YEAR 1984 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	FISCAL YEAR / CALENDAR YEAR LATER JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
122																				
40	40	40	40	40	40	42	50	50	50	50	50									

TOTAL QUANTITY PRODUCED THIS FORM

FACILITY NO.	MANUFACTURER'S NAME & LOCATION	PRODUCTION RATES SCHEDULED / ACTUAL	1 DEC	SCHEDULED	RELATING TO ACTUAL DATE AS TO D-DAY

PROCUREMENT LEAD TIME (MONTHS)

	ADMIN	PROD	TOTAL
INITIAL			
RECORDED			

P-1 LINE NO. 21 PAGE NO. ____ OF ____ PAGES

REMARKS ** TEST VEHICLES FOR FDTC WERE TO BE DELIVERED OUT OF THE FY81 PROGRAM QUANTITY. FDTC WAS DELAYED WHEN FY82 QUANTITIES WERE DESIGNATED TEST VEHICLES TO BE DELIVERED EARLY.

Budget Line 21 - Ten Ton Truck (Oshkosh Truck Program)

Question. Provide a comparison of scheduled deliveries and actual deliveries for the FY 1982 buy to date.
Answer. The attached P-21 form compares the scheduled and actual deliveries of the 10 Ton Truck to date:

Budget Line 21 - Ten Ton Truck (Oshkosh Truck Program)

Question. Briefly describe the status of the Army and contractors efforts to fix the rear axle problem. How many vehicles are still at the contractor's plant to be fixed? How much has this problem caused the unit price to go up?
Answer. After the initial failure problem on the Eaton DS-381 axle, a detailed analysis of Oshkosh HEMTT torque and stress loads revealed that the proposed modifications (better material, double shot peening, and reverse cut gears) would not be adequate. A decision was made to test the Eaton DS-480 axle which is a generally larger axle with an 18 inch diameter ring gear (versus 16 1/2 inch diameter for the DS-381). Subsequent tests showed the DS-480 to be an improvement. However, failures did occur because of poor quality steel in the ring gears. A meeting is scheduled at Eaton Corp, Cleveland, Ohio on 18-19 April to resolve axle problems including the results of the special instrumentation truck operated over HEMTT APG MD test courses to determine driveline/axle stresses. The impact of the axle problem on the vehicle unit price can not be determined until all matters relating to the problem are resolved. At the present time 25 trucks remain to be retrofitted.

Question. Given the rear axle problems, has the Army been making full payment for vehicles to the contractor? If so, how is this justified? Do these payments qualify for the prompt payment provisions under the existing contract?
Answer. The Army in accordance with the provisions of the contract has been conditionally accepting HEMTT vehicles, less cranes, and subject to retrofit/corrections of such items as axles making full payment for vehicles less $22,048 for the missing cranes. Oshkosh, a small business, has presented information indicating that it would suffer severe financial harm if the Government discontinued conditionally accepting vehicles. The full prompt payment discount is taken upon payment for each vehicle.

Budget Line 26 - Items less than $900,000

QUESTION. Provide a brief summary of what the $2.6 million request will provide for in FY 1984.

ANSWER. The $2.6 million is required to buy the following tool/shop sets for automotive maintenance:

Nomenclature	QTY	$ in Mil
Shop Equipment Automotive Maintenance & Repair, Field/ Maintenance Basic (G349)	20	.840
Shop Equipment, Automotive Maintenance & Repair, Field/ Maintenance Supplemental #1 (G350)	20	.338
Shop Set, Contact & Emergency Repair, Field/Maintenance (G352)	5	.032
Shop Equipment, Automotive Maintenance & Repair, #1 Common (G389)	92	.862
Shop Equipment, Automotive Maintenance & Repair, #2 Common (G390)	50	.554
		2.626

Budget Line 27 thru 29 - Not Tactical Vehicles

Question: For the FY 1984 program identify the quantities and dollar amounts dedicated to the procurement of non U. S. manufactured vehicles.

Answer. The requested breakout for the FY 1984 current off-shore procurement for non-US manufactured vehicles is as follows:

Total Offshore Procurement Program by Budget Line No.

	QTY	DOLLARS(M)
BLI 27 Passenger Carrying Vehicles	48	$ .8
BLI 29-General Purpose Vehicles	1125	15.2
BLI 29-Special Purpose Vehicles	153	4.0
TOTAL	1326	20.0

BLI #	SSN	NOMENCLATURE	QTY	DOLLARS(M)
27	D204	Truck, Ambulance	48	$ .8
28	D263	Truck, Carryall	350	3.1
28	D269	Truck, Panel	477	3.6
28	D279	Truck, Tank, Fuel Service	4	.2
28	D283	Truck, Tank, Water	2	.1
28	D285	Truck, Tractor 16,000-32,000	62	4.0
28	D287	Truck, Tractor, 6x4	27	1.1
28	D292	Truck, Van, Cargo, 4x2	64	1.4
28	D301	Semitrailer, Refrigerator	3	.1
28	D303	Semitrailer, Stake, 12T, 2 Whl	53	.6
28	D311	Semitrailer, Van Cargo	83	1.0
29	D199	Truck, Maintenance, 1/4 Ton	81	.4
29	D265	Truck, Dump	11	.8
29	D459	Truck, Maintenance	5	.2
29	D552	Truck, Multi-purpose 2 Ton	56	2.6

The need for vehicles by item have changed over the past six months. The above quantities and dollars reflect these changes.

Spares and Repair Parts

QUESTION. Breakout the FY1982 through 1985 spares and repair parts program for Budget Activity 1 by program budget line.

ANSWER. The spare parts requirements for Budget Activity 1 are divided into initial spares which supports newly deploying equipment and replenishment spares which supports the Army's current fielded equipment.

	($ in millions)			
Type	FY82	FY83	FY84	FY85
Initial	5.5	18.1	11.6	17.6
Replenishment	82.6	118.0	91.0	113.0
TOTAL	88.1	136.1	102.6	130.6

Initial requirements by vehicle for FY82 through FY85 are:

	($ in millions)			
Vehicle	FY82	FY83	FY84	FY85
Heavy Equipment Transporter (HET)	0	0	0	.4
Commercial Utility and Cargo Vehicle (CUCV)	.6	4.2	4.7	5.2
M939 Series 5-Ton Truck	2.0	6.7	3.4	4.4

High Mobility Multi-purpose Wheeled Vehicle (HMMWV)	0	.2	.9	2.0
Fast Attack Vehicle	0	0	.1	0
M915A1 Truck Tractor	.9	0	0	0
Heavy Expanded Mobility Tactical Truck (HEMTT)	2.0	6.8	2.5	5.4
Small Unit Support Vehicle (SUSV)	0	.2	0	0
M916/M920 Light/Medium Equipment Transporter (LET/MET)	0	0	0	.2
Initial TOTAL	5.5	18.1	11.6	17.6

Current Budget estimates for replenishment spares are based upon demand for component items from user units and not by vehicle. The Army has begun to develop the means to identify replenishment spares cost associated with a particular weapon system in 1985 for the FY87 President's Budget. This timeframe was recognized as valid by OSD and subsequently directed in the FY84 Defense Guidance to the Army for implementation.

Budget Line 31 Production Base Support

Question. Briefly identify what the $3 million will be used for in each of the MMT and MACI programs for FY 1984.
Answer. A total of $6.1 million is requested for various projects in Manufacturing Methods and Technology (MM&T) and Military Adaptation of Commercial Items (MACI). These projects reduce future procurement costs by improving the efficiency of manufacturing or permit the acquisition of less costly commercial components or vehicles. While some projects may extend over several years and the FY 84 portion may accomplish only a small portion of the total objective, the attached chart identifies the projects, the funds and the overall objective of each project:

TYPE	TITLE	$ in MIL	OBJECTIVE
MM&T	Manufacturing for Corrosion Prevention in Tactical Vehs	.595	Ensure mass production capability for reinforced composite, rust free, materials and components for 5 and 10 ton truck cabs.
MM&T	[redacted]	[redacted]	Scale up production capability for ceramic adiabatic diesel engine piston caps, valves, cylinder liners and other parts exposed to high operating temperatures.
MM&T	Lightweight Tilt-up Hood and Fender Assembly	.200	Complete production tooling for the manufacture of reinforced fiberglass, lightweight tilt-up hoods and fenders to replace steel parts which are heavier and require more fuel for vehicle operation.
MM&T	Tooele Army Depot Productivity Improvement Program.	1.000	Improve productivity of Tooele to speed up the repair of tactical vehicles and engine and transmission repairs for 2 1/2 ton trucks.
MM&T	Automated Dynamometer Control	.455	Evaluate an automated dynamometer for incorporation into Tooele Army Depot for the evaluation and acceptance testing of rebuilt engines.
	SUBTOTAL MM&T	3.000	
MACI	Transmission and Transfer Assemblies	.460	Survey and evaluate commercially available transmissions and transfer cases with a projected fuel economy improvement of 14-20% over conventional automatic transmissions.
MACI	Advanced Commercial Components	.340	Evaluate components such as auxiliary pneumatic diesel engine cranking motors, solid state alternators, digital read out instrument panels, advanced brakes and hydraulic and electrical components.
MACI	Commercial Engines for Tactical Vehicles	1.100	Evaluate commercial high performance, high durability engines capable of running on alternate fuels such as high sulfur fuel, alcohol-diesel blends shale and coal tar derivatives.
MACI	Commercial Vehicles for Tactical Applications	1.200	Evaluate commercially available trucks to determine which can meet military requirements eigher as is or with slight modification.
	SUBTOTAL MACI	3.100	
	GRAND TOTAL	6.100	

CONTAINER REPAIR PROGRAM

QUESTION: Ogden ALC officials indicated that operations and maintenance funds have been requested to support the FY 1984 container repair program. Why did the Air Force also request procurement funds for the same container repair program?

ANSWER: The Air Force has not requested procurement funds for container repair programs. The container procurements funds included in the 30mm ammo P-1 budget lines are all for new containers.

30MM GUN PODS

QUESTION: What percentage of the forecasted training requirements included in the FY 1984 budget request for 30mm training is based on use of the 30mm gun pod? How many 30mm gun pods will be available at the end of the FY 1984 buy for 30mm training rounds? Which major commands will use the 30mm gun pod?

ANSWER: The percentage of the training requirements included in the FY 1984 budget request for 30mm gun pod training is 4.6 percent. The FY 1984 buy increases the total gun pod quantity to 299. The Tactical Air Command (TAC) and the Air National Guard (ANG) use the 30mm gun pods.

AMMUNITION LOADER

QUESTION: Since the GAU-8 ammunition loader must be modified before it can be used to load the 30mm gun pod, what is the status of ASD's contract for the modification of five GAU-8 ammunition loaders? When will the loaders be available?

ANSWER: The Armament Division at Eglin AFB has awarded a contract for five(5) modified GAU-8 ammunition loaders (GFU-9/E). The loaders will be delivered May - Jun 83.

PORTABLE LOADER

QUESTION: ASD plans to develop a new portable loader for the 30mm gun pod. Has ASD awarded a contract for the new loader? If so, when will the loaders be delivered? If not, when will the contract be awarded?

ANSWER: The Armament Division at Eglin AFB has awarded a development contract for a new ammunition loader. The development contracts were awarded in Sep 82 (General Electric) and Oct 82 (Wayne Coloney). Production loaders will be delivered Dec 83 - Aug 84. In the meantime, a modified GAU-8 loader will be used to load the gun pods.

FORECASTED CONSUMPTION

QUESTION: Since it appears that only a limited number of gun pods and loaders will be available for use, is the quantity of forecasted consumption for use with the gun pod reasonable?

ANSWER: The quantity of forecasted consumption for use with the gun pod is reasonable. Gun pods are being delivered on schedule and ammunition loaders will be available. The gun pod could be loaded by hand if required; an ammunition loader avoids undesirable increases in aircraft turnaround time.

BSU-50 LEAD TIME

QUESTION: According to an ARRCOM official, the lead time for the BSU-50 is 15 months. Why did the Air Force increase the lead time to 18 months?

ANSWER: The three months lead time added for the BSU-50 program above that stated by ARRCOM considers the time required for OSD release of funding and AF administrative lead time required to process the funding documents and forward the purchase request to the Army.

BSU-50 CONTRACT

QUESTION: If the FY 1983 BSU-50 program is not on contract by April 1983, it will not be completed as scheduled and will delay production of the FY 1984 program. Has a contract been awarded for the FY 1983 program? If not, when will it be awarded?

ANSWER: The Military Interdepartmental Purchase Request (MIPR) was released to Army Single Manager for Conventional Ammunition (SMCA) 23 Feb 1983. SMCA accepted the MIPR on 22 Mar 1983. The SMCA projects contract award by end of June 1983 with deliveries starting in Jan 1984. On 7 March 1983, SMCA Contracting Officer confirmed all FY 1983 deliveries will be completed within the FY 1983 funded delivery period.

RETARDER PRODUCTION RATE

QUESTION: Since the preferred fuze for retarders will not be available, and since for some applications the required fuzes will not be available, has consideration been given to reducing Goodyear's retarder production rate of nearly 8,000 per month? This rate is based on a two shift operation starting about July or August 1983. Would it be reasonable to defer funding for some of the retarders until FY 1985 for this reason?

ANSWER: The option of reducing retarder production has been explored and rejected due to the significant shortage of retarder fins. We will have [deleted] of requirement for retarders at the end of FY 1983 funded delivery period. Although preferred fuzes are not now available, they will be available in the near future, and substitute fuzes for most applications are available.

The two shift operation by the contractor is the most economical rate due to reduced equipment and overhead expenses. Deferring production from FY 1984 will increase unit costs and would defer the resolution of retarder shortages.

These retarders, combined with inventory bombs, comprise the majority of the near-term Air Force munitions capability. They will have to be used as substitutes until the shortfalls of other munitions stocks are filled. For this reason, the production of retarders has a high priority, since it maximizes the utility of current bomb inventories.

LLLGB IOT&E

QUESTION: What are the results of the LLLGB Initial Operational Testing and Evaluation (IOT&E)?

ANSWER: As of 11 Apr 83, a total of 34 weapons have been dropped with 16 hits and 18 misses. Of the 18 misses, five have been declared no tests, four are potential tactics errors, two are

weapon performance problems, five are weapon reliability problems, and two have yet to be identified since they were only recently dropped. This box score is subject to change with further analysis.

FAILURE RATE

QUESTION: In view of the approximate 50 percent failure rate of the LLLGB in IOT&E, does the Air Force feel that the LLLGB is ready for production? If so, why?

ANSWER: Production readiness will be determined at the production decision planned for late May. Although the overall success rate for IOT&E stands at approximately 50 percent, its basis is not totally due to LLLGB weapon reliability. Many of the misses which contributed to the 50 percent success rate have been identified as laser designator pod malfunctions and designator tactics errors. The analysis of all the IOT&E tests is still ongoing and will be presented at the production decision. It is premature to make that decision now. The Air Force continues to support the LLLGB full scale development program and system requirements.

PRODUCTION DECISION

QUESTION: When is the LLLGB production decision?

ANSWER: Late May 1983.

CRITERIA FOR DECISION

QUESTION: What are the criteria for making the decision to produce the LLLGB?

ANSWER: The critical questions to be answered before making a production decision are:

1. Does the LLLGB provide increased system accuracy when compared with the current LGB's?
2. Is the delivery/designator aircraft more survivable when employing the LLLGB?
3. Can the LLLGB be employed under low ceiling/reduced visibility conditions?
4. Does the LLLGB provide enhanced countermeasure resistance?
5. Does the LLLGB meet the Air Force's reliability requirements?

PERFORMANCE AND TECHNICAL STANDARDS

QUESTION: Has the LLLGB met the minimum performance and technical standards required by the Air Force?

ANSWER: An analysis of system performance and weapon reliability is ongoing. A final evaluation will be made at the completion of IOT&E when the totality of data can be compared with the system requirements.

PRODUCTION SCHEDULE

QUESTION: Since the procurement lead time for the LLLGB is 17 months for the FY 1984 buy, why does the production schedule reflect 21 months?

a. Could the schedule be revised so that FY 1984 deliveries could begin in March 1985?

b. If not, could the monthly quantities be increased so that the FY 1984 deliveries could be made by the end of the funded delivery period?

ANSWER: As a result of slips in IOT&E, the production schedule has been revised. In FY 1984, the manufacturing lead time will be 15 months with a two month administrative lead time. The FY 1984 deliveries are currently planned to start in March 85.

UNIT COST

QUESTION: Considering that the number of LLLGB containers requested in FY 1984 is about five times as many as FY 1983, why is the unit cost $102 higher in FY 1984?

ANSWER: LLLGB requires three different types of containers due to the 500 lb and 2000 lb unitary warhead variants. The cost per container type is different. The FY 1984 buy contains a larger mix of the more expensive containers to meet the planned weapon procurement. As a result, the unit cost of the total container buy has increased.

FUNDING FOR ADDITIONAL TOOLING

QUESTION: Has the funding been received for the additional tooling and test equipment needed to increase monthly production capacity? If so, when will the equipment be installed? Will production capacity reach 958 units per month by October 1985? If not, should consideration be given to further reducing the quantity to be funded?

ANSWER: In FY 1982, funding was provided for tooling and test equipment to permit a 500 unit/month production rate. In FY 1983, funding has been identified for tooling and test equipment to permit a 1300/month production rate. The FY 1983 tooling and test equipment funds will be released following a successful production decision.

Due to IOT&E difficulties, the delivery schedule has been revised. The FY 1983 buy will be delivered from March 84 through February 85. The FY 1984 buy will be delivered from March 85 through February 86. The tooling and test equipment will be available for a greater than 500 unit/month rate by May 85, as planned. These production rates and delivery schedule will support the current planned procurement quantities.

WRM REQUIREMENT

QUESTION: Since the asset position of the LGB-II far exceeds its WRM requirement, does the Air Force plan to reduce the WRM requirement for the the LLLGB accordingly?

ANSWER: No. However, the LGB-II is utilized as a substitute for the LLLGB and the combined LGB-II and LLLGB inventories are considered when computing production requirements for LLLGB.

The current WRM requirement for both LGB-II and LLLGB is constrained by the availability of aircraft laser designators. When the LANTIRN system is deployed, WRM requirements for LGB-II and LLLGB will increase to levels significantly higher (approximately 50 to 100 percent) than current levels.

TAF REQUIREMENTS

QUESTION: What are the TAF requirements relative to the ratio of FZU-39/B fuzes to CEM and Gator weapons? What is the requirement in the United States Air Forces in Europe (USAFE), Pacific Air Force (PACAF), Rapid Deployment Forces (RDF), and other TAF users, expressed as a percentage?

ANSWER: FZU-39/B is the sensor used with the Tactical Munitions Dispenser for Combined Effects Munition (CEM) and Gator Mines. The ratio to weapon is 1:1. The War Reserve Materiel (WRM) requirement for these weapons includes the FZU-39/B as an integral part. The FY 88 combined CEM and Gator WRM inventory objective by theater is USAFE 77%, PACAF 9%, and RDF 14%.

WEAPONS PROCUREMENT, NAVY

TRIDENT I (C-4) MISSILE PROCUREMENT

QUESTION: For program years FY 1983 through to completion, identify the year or years of appropriation of the prior year advance procurement applied to the current program year.

ANSWER: The following table identifies for FY 1983 through completion program year application of prior year advance procurement by fiscal year of appropriation:

Appropriation	(dollars in millions) Year by Application						
	FY83	FY84	FY85	FY86	FY87	FY88	To Complete
FY 1976	2.0	1.7	.5	.5	.5	.5	7.0
FY 19TQ	1.0	.8	.5	.5	.5	.5	5.0
FY 1977	11.6	9.4	.5	.5	.5	.5	33.0
FY 1978	4.5	7.2	.5	.5	.5	.5	43.2
FY 1979	6.4	5.4	.5	.5	.5	.5	40.0
FY 1980	17.4	5.0	.5	.5	.5	.5	16.0
FY 1981	31.0	42.3	3.0	3.0	3.0	3.0	20.0
FY 1982	29.7	56.0	15.0	15.0	15.0	15.0	68.0
FY 1983	-	9.3	1.0	1.0	1.0	1.0	15.8
TOTAL	103.6	137.1	22.0	22.0	22.0	22.0	248.0

QUESTION: What are the unobligated balances for FY 1981, FY 1982, and FY 1983 advanced procurement lines for the TRIDENT I missiles.

ANSWER: Current obligation status is as follows:

Appropriation	(dollars in millions) Allocation	Obligations	Unobligated Balance
FY 1981	$137.5	$137.3	$ .2
FY 1982	$213.7	$154.6	$59.1
FY 1983	$ 29.1	-0-	$29.1

These unobligated balances are a result of reductions in the C-4 missile end inventory objective caused by changes in the installation schedule of the TRIDENT II (D-5) Strategic Weapon System in TRIDENT submarines and reductions in the C-4 flight test program. While

requirements exist through FY 1984, FY 1983 is the final year in which funds are requested in the current Advance Procurement program. This budget profile was developed based on the retention of the prior year unobligated balances identified here for use in support of later year requirements. This technique permits maximum utilization of already appropriated funding.

QUESTION: For program years FY 1986 and beyond through the completion category specify how the advanced procurement funds will be applied by cost element as is done in the P-22 forms.

ANSWER: The following table identifies TRIDENT I Advance Procurement application by cost element for FY 1986 through the cost to complete:

	(dollars in millions) FY 1986	FY 1987	FY 1988	Cost To complete
Special Purpose Instrumentation	$ 4.2	$4.2	$4.2	$29.4
MK-4 Reentry Body Shells	5.0	3.0	1.0	-
Arming, Fuzing and Firing System	2.5	-	-	-
Lifetime Total System Support 1/	10.3	14.8	16.8	218.6
Total	$22.0	$22.0	$22.0	$248.0

1/ This category provides for all missile, guidance system, reentry system and flight test instrumentation critical components necessary to support spare and repair parts requirements through the operational life of the TRIDENT I missile program.

QUESTION: With respect to the $248 million advanced procurement funds identified in the "to complete" column of the CDS, what would be the impact of moving some or all of that amount to the FY 1984 procurement program?

ANSWER: The $248 million identified in the "to complete" column provided for the advance procurement of production continuity critical components which will ensure continuous support throughout the deployed life of all TRIDENT I missiles. The FY 1984 procurement program includes requirements for all material necessary for production of the 52 missiles requested exclusive of those long lead and production continuity critical components that were procured in advance. The FY 1984 procurement program reflects the application of $137.1 million of prior year advance procurement funds for critical components which is the maximum possible amount that can be applied. Therefore, no benefit can be realized by adding any of the $248 million in question.

QUESTION: Provide a list of critical components with long lead times which are funded under the advanced procurement category "production continuity". For each item indicate the lead time in months.

ANSWER: Advance Procurement requirements are generated either by excessive lead-time considerations or production continuity needs. The FY 1983 Advance Procurement requirements include the following items having excessive lead times:

Commodity	Lead Time Mos.
Aluminum and Stainless Steel Motor Forgings	30
Gas Hydraulic Castings and Forgings	29
Various Forgings and Castings	27
MK4 Reentry Body Substrate Forging	32
MK4 Reentry Body Cruciform Billet	30

The balance of the items included in the FY 1983 program must be procured at given uninterrupted production continuity rates in order to attain the quality and homogeneity necessary to assure consistent reliability of the TRIDENT I missile.

WPN-ASTRONAUTICS

QUESTION: Funds are being requested for launch support activities. Briefly describe what kind of services are provided under this category of activity.

ANSWER: Launch support requirements provide for both fixed and variable costs necessary to maintain the SCOUT booster rocket program. Fixed costs include requirements to:

1) maintain the contractor launch team and overall program management
2) sustain SCOUT program reliability
3) configuration control and storage and checkout.

Variable costs are predicated on the number of planned launches.

QUESTION: For FY 1982 through FY 1985 how many satellite launches have occurred or are programmed by year?

ANSWER: No satellite launches were required in FY 1982. Current planning includes requirements for launch of a NOVA satellite in FY 1983, an OSCAR satellite in FY 1984, and a dual OSCAR launch in FY 1985.

TOMAHAWK

QUESTION: Provide a schedule of actual missile deliveries to date for the FY 1980 and FY 1981 procurement programs.

ANSWER: In FY 1980 six TOMAHAWK Sea Launched Cruise Missiles (SLCM) were purchased. In FY 1981 fifty SLCM were purchased. Delivery of these missiles commenced in FY 1982. All six FY 1980 missiles were delivered by the 1st quarter of FY 1982. Fifteen of the FY 1981 missiles have been delivered to date. In November 1982, Secretary of the Navy imposed a 4-6 per month missile production rate until satisfactory test results were achieved. Based on several satisfactory reviews since then, it is expected that the limit will be lifted.

QUESTION: Provide a copy of the SECDEF decision memo signed out as a result of the 1977 DSARC II review.

ANSWER: A copy of this memorandum is provided as requested:

THE DEPUTY SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

14 JAN 1977

MEMORANDUM FOR THE SECRETARY OF THE AIR FORCE
SECRETARY OF THE NAVY
CHAIRMAN, JOINT CHIEFS OF STAFF
DIRECTOR, DEFENSE RESEARCH & ENGINEERING

SUBJECT: Cruise Missile Programs

As a result of the DSARC II review, the Air Force and the Navy are to be commended for the accomplishments to date of their respective cruise missile development programs of ALCM and TOMAHAWK.

A major issue before the DSARC was whether or not an air-launched cruise missile with a unique airframe should be allowed to proceed. In spite of the acquisition cost savings which would accrue from such a course of action, I have decided that a common airframe for all applications may impose unnecessary and unwarranted performance compromises on both weapon systems. However, considerable benefits still can be realized in joint test and evaluation, in quantity buy of common components, and in management efficiency, by consolidating the two separate Air Force and Navy programs, now independently managed by different program offices.

I, therefore, direct you to pursue with all vigor the cruise missile programs as follows:

a. A Joint Service Cruise Missile Program Office (JSCMPO) is to be established with the Navy designated as the lead service and Captain Walter Locke as its immediate Program Manager.

b. The JSCMPO, under the general direction of DDR&E, is to develop the ALCM and the TOMAHAWK cruise missile weapon systems for the Air Force and for the Navy.

c. The first tasks of JSCMPO are to complete the RDT&E, leading to production decisions at DSARC III, of the ALCM for strategic bombers and the TOMAHAWK variants including the important Air Force ground-launched cruise missile application. Funding of these tasks is to be consolidated from the approved program elements P. E. 64361F, P. E. 63362F, P. E. 63361N, and P. E. 64367N.

d. In conducting the above tasks, the JSCMPO is to maximize subsystem/component commonality and quantity buy, to utilize fully joint test and evaluation, to encourage subsystem/second-source competitive procurement, and to otherwise derive maximum benefit from the joint service management of several separable cruise missile programs.

e. The Navy and Air Force are to submit jointly within 45 days from this date for DDR&E approval, the plan for establishing the JSCMPO and a set of program plans, schedules and milestones for the respective ALCM, TOMAHAWK and the Ground Launch Cruise Missile (GLCM), reflecting the following specific guidelines. A revised Air Force cost

estimate for the ALCM program based on evaluation of contractor proposals is to be submitted at the same time.

(1) The ALCM B, with a range of at least 1500 nm is to enter its full-scale Engineering Development for the B-52 application and to achieve an IOC on or before July 1980 and is to be given priority over the ALCM A. The B-52 weapon system should be optimized for long-range cruise missile carriage with consideration of both internal and external carriage.

(2) The land-attack TOMAHAWK variants, with a range of at least 1500 nm, for submarine launch and for surface ship launch, are to enter full scale Engineering Development.

(3) The Air Force GLCM is to be adapted from the land-attack TOMAHAWK, for mobile launchers, capable of a range of at least 1500 nm for the theater nuclear role with an expeditious IOC. Funds should be reprogrammed as required in FY78 so as to permit the GLCM to enter full scale engineering development in FY79.

(4) Ship- and submarine-launched anti-ship TOMAHAWK is to enter full-scale Engineering Development. Ship-launched TOMAHAWK is to be capable of application in all combatant ships including frigates and such smaller platforms as may be attractive to enhance Naval strike capability. The Navy is to pursue aggressively the development of the necessary over-the-horizon target acquisition, identification, and damage assessment capability to be demonstrated by DSARC III of the anti-ship TOMAHAWK missile.

(5) The JCSPMO is to explore the development of the ground-launched anti-ship version of GLCM.

f. An essential element in consolidation benefits is in joint testing. A joint test and evaluation master plan (TEMP) is to be submitted for DDT&E review within 90 days from this date. This TEMP is to include realistic missile employment test and penetrativity evaluation.

In addition, the JCS is directed to submit to OSD, within 90 days from this date, a position paper resolving potential Service roles/missions issues for the cases of: (1) ground-launched nuclear deep-strike in the theater (Army and Air Force) and (2) ground-launched anti-ship (Army and Navy) and a second paper enumerating cruise missile and associated weapon system requirements for the B-52 fleet, the SSN's and other combatant ships, and the GLCM missions both land attack and anti-ship.

The Air Force and the Navy are to initiate R&D programs in advanced cruise missile technology and concept explorations. Such programs should involve wide industrial participation in order to introduce innovations and are to include but are not limited to terminal guidance, advanced propulsion for supersonic dash maneuver, compact low-power ECM, and controlled submunition deployment. These programs should be included in the FY 1979 budget cycle.

H. P. Clemens Jr.

TOMAHAWK

QUESTION: When is the DSARC III review scheduled?

ANSWER: Dates for the DNSARC III review of the Navy missiles have not been scheduled. Milestone III or AFSARC for the Ground Launched Cruise Missile has been scheduled for the end of May 1983.

QUESTION: What was the date of the last Department of Defense program review for the TOMAHAWK program? What were the results and guidance received as a result of that review?

ANSWER: The Joint Cruise Missiles Project presented an update briefing to Secretary of Defense on 15 February 1983. The Secretary of Defense indicated strong support for the TOMAHAWK program and made some specific comments as follows:

- He must be kept apprised of any schedule slippage/delays.
- He emphasized maintaining Ground Launched Cruise Missile schedule and planned initial operational capability.
- He noted the impact of the reduction in missile procurement quantities on the increase in unit procurement cost in FY 1983.
- He indicated he wanted frequent updates.
- All DSARC members are to be promptly apprised of both funding and technical problems and Navy proposals for corrective action, so that impacts on other programs, if any, will be minimized.
- The next formal SECDEF review is scheduled for 17 May 83.

QUESTION: When was production of the TOMAHAWK missile authorized and by whom? What guidance was issued at that time with respect to further production reviews?

ANSWER: Production of the TOMAHAWK missile was authorized in July 1980 by Under Secretary of Defense for Research and Engineering (USDR&E Memorandum of 16 July 1980), copy attached. Further authorization was made subject to Cruise Missile Executive Committee reviews, which was to be subsequently followed by milestone III. On 7 December 1981, the TOMAHAWK program became a ACAT IIs program which delegated milestone III to the Secretary of the Navy. Current limited production of TOMAHAWK in advance of approval for Service Use was authorized by SECNAV memo of 12 NOV 82, copy attached:

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON D C 20350

16 JUL 1980

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE NAVY (MANPOWER, RESERVE AFFAIRS AND LOGISTICS)

SUBJECT: TOMAHAWK Cruise Missile Production

References: (a) USDRE Memorandum of 17 December 1979
(b) USDRE Memorandum of 7 May 1980

The TOMAHAWK Ground and Sea Launched Cruise Missile programs are structured with concurrency in weapon system development and production in order to achieve Initial Operational Capabilities directed by references (a) and (b). Lengthening material lead times make it necessary to award limited production and advance procurement contracts now in the interest of maintaining continuity of effort between development and production phases and in preserving the IOCs of both the ground and sea launched programs.

Authority is granted to award FY 1980 limited production and FY 1980 long lead material contracts for the FY 1981 buy up to the full amount of the FY 1980 Congressional appropriation. Authorization to award FY 1981 rate production and long lead material contracts for the FY 1982 buy in advance of Milestone III will be subject to EXCOM review in early CY 1981, which will consider results of development testing and mission need.

William J. Perry

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12 November 1982

MEMORANDUM FOR THE CHIEF OF NAVAL OPERATIONS

Subj: TOMAHAWK (BGM-109), Request for Limited Production in Advance of Approval for Service Use (ASU)

Ref: (a) JCMPO memo Ser 00/580 to ASN(S&L) via CNO, dtd 20 Sep 1982

A waiver in advance of Approval for Service Use (ASU) and the limited production of the subsystems for the FY-82 procurement lot for the TOMAHAWK (BGM-109) missile to support 88 missiles is approved. In addition, approval is granted for the procurement of long-lead material only for the 120 missile FY-83 procurement lot. Long-lead material procurement for the FY-84 missiles is not authorized.

The missile production rates authorized are not to exceed the minimum sustainable rate of 4-6 missiles per month total, until CNO and ASN(RE&S) have reviewed satisfactory test results and CHNAVMAT is satisfied with the results of corrective actions taken which are pertinent to the "Clark Report" on TOMAHAWK of 16 August 1982.

John Lehman
Secretary of the Navy

TOMAHAWK

QUESTION: In light of the several problems which lead to the restructuring of the Tomahawk program, is it fair to characterize the program management strategy as being one of making the missiles perform as very best possible within the current state of design and to come back later with improvements in designs to increase performance to required levels? If this is not a fair assessment, please describe the management strategy over the next 12 to 18 months.

ANSWER: Yes, that is a fair assessment of our management strategy. The basic intent in the restructured program satisfies those requirements.

QUESTION: By missile type, identify all test launches in FY 1983 to date with a brief description of the test flight to include whether it was judged to be a successful or unsuccessful test flight. If unsuccessful, identify the nature of the problem. Indicate whether the test vehicle was/was not recovered by parachute.

ANSWER: During FY 1983, there have been seven TOMAHAWK flight tests to date. Of these seven, five have been considered successful and two failures. See attached description of test flights:

FLIGHT DESCRIPTION

Ground Launched Cruise Missile (GLCM)

11-12-82 Missile was launched from the Transporter Erector Launcher/ Launch Control Center at the Utah Test and Training Range. Launch, transition, cruise flight and target flyover were as planned. The vehicle was recovered by parachute. Test successful.

12-17-82 Missile was launched from the Transporter Erector Launcher/ Launch Control Center at the Utah Test and Training Range. Due to failure to deploy the inlet cover, the missile impacted the ground 22 seconds after launch. This difficulty has been attributed to a pneumatic system failure. Test classified a failure. Fix made and tested successfully.

02-23-83 Missile was launched from the Transporter Erector Launcher/ Launch Control Center at the Utah Test and Training Range. Launch, transition, cruise flight and target flyover were as planned. The vehicle was recovered by parachute. Test successful.

Sea Launched Cruise Missile (SLCM) Nuclear Land Attack

04-16-83 Missile was launched from the submerged submarine, USS LA JOLLA in open ocean off the California coast. The missile transitioned to cruise flight and flew to the target located on the Utah Test and Training Range -- a distance of more than 800 miles. Although all events of the warhead arming maneuver were not satisfied, the flight test of the missile was considered successful. Missile recovered by parachute.

Sea Launched Cruise Missile (SLCM) Conventional Land Attack

12-03-82 Missile was launched from the submerged submarine, USS GUITARRO in open ocean off the California coast, transitioned to cruise flight and flew the planned route to the target at the Tonopah Test and Training Range in Nevada. The missile purposely impacted the target the size of a house after flight of more than 300 miles. Test successful.

03-06-83 Missile was launched from the USS MERRILL (Armored Box Launcher) in open ocean off the California coast and transitioned to cruise flight. After about 20 minutes of flight, the missile impacted the ground in the Los Padros National Forest. The investigation showed that the guidance computer failed. Test classified a failure.

04-14-83 Missile was launched from the submerged submarine, USS LA JOLLA in open ocean off the California coast. Missile transitioned to cruise flight and flew to the target at the Tonopah Test and Training Range. Missile purposely impacted target located more than 400 miles from launch point. Test successful.

TOMAHAWK

QUESTION: The FY 1984 congressional data sheets indicate a milestone III production decision will be held after completion of all operational test and evaluation. Will award of FY 1983 contracts be held up until completion of the production milestone III review?

ANSWER: No, FY 83 contracts will be awarded prior to completion of any further production reviews as authorized by Secretary of the Navy memorandum dated 24 March 1983 (copy attached).

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

24 MAR 1983

MEMORANDUM FOR THE CHIEF OF NAVAL OPERATIONS

Subj: Authorization to Definitize FY 1983 Contracts and Procure FY 1984 Long Lead Material for TOMAHAWK Cruise Missiles (BGM-109)

Ref: (a) JCMP memo Ser 00/138 of 7 Feb 1983 via CNM and CNO
(b) SECNAV memo of 12 Nov 1982

Authority to definitize FY 1983 production contracts in accordance with the restructured program, and to obligate FY 1983 advance procurement funds for long lead material in support of the FY 1984 program, as requested in reference (a), is approved.

The missile production rate limitation of 4-6 missiles per month total, imposed by reference (b), remains until the CNO and ASN(R,E&S) have reviewed satisfactory test results and CHNAVMAT is satisfied with the results of corrective actions taken which are pertinent to the "Clark Report" on TOMAHAWK of 16 August 1982.

JOHN LEHMAN
Secretary of the Navy

TOMAHAWK

QUESTION: Is the production III review another name for the DNSARC III? If so, what is the schedule for DNSARC III reviews for the various models in the program?

ANSWER: Yes, a production III review is a milestone III which is the full rate production deployment decision -- DSARC III, DNSARC III or Program Review. The Joint Cruise Missiles Project is requesting a program review for the submarine weapon system, nuclear land attack and anti-ship variants/models; however, no date has been scheduled for these reviews. Requests for such program reviews of the conventional land attack missile or the surface ship systems have not been made. The milestone III decision for the ground launched missile is scheduled for the end of May.

QUESTION: Why is it necessary to increase FY 84 production levels above FY 83 levels before holding the DNSARC III review?

ANSWER: The FY 1982 and FY 1983 production levels were reduced as part of the TOMAHAWK restructured program in order to limit procurement numbers while resolving transition problems from Research and Development to Production. Joint Cruise Missile Project Office will conduct a production readiness review in May 1983 to determine if the quality assurance and manufacturing deficiencies will be corrected prior to the award of the FY 84 contracts. The increase in the 1984 production level is the minimum requirement needed to make this transition, satisfy operational commitments and provide an adequate quantity of missiles to support the dual source competition beginning in FY 1984. These FY 84 quantities also provide for a smooth progression of build-up rates to meet outyear production levels.

QUESTION: Why is advanced procurement funding starting in FY 1984 for the BGM-109A guidance sets, when such support was not required in FY 1983 for the FY 1984 production?

ANSWER: The 1982 and 1983 missile delivery schedules were restructured because of reduced procurements and realigned priorities. As a result, the FY 1984 missile deliveries start earlier in the year than in prior procurements. This necessitated advance procurement for the guidance set.

SPARROW MISSILE (AIM/RIM-7M)

QUESTION: Provide in a table reflecting inventory objectives/requirements for the air sparrow similar to that provided in the Congressional data sheets which shows quantities broken out for the AIM-7E, AIM-7F, and AIM-7M. Also table projected inventory losses by missile model (7E/7F/7M).

ANSWER: A breakout of the SPARROW Missile (AIM/RIM-7M) quantities by model is provided in the table below:

INVENTORY OBJECTIVE/REQUIREMENT: AIR SPARROW

Inventory Objective (End FY 1988 Funded Delivery Period): (deleted)
Inventory, Beginning FY 1984 FDP (deleted)
Delivered, FY 1984/1988 FDP (+) (deleted)
Inventory Losses, FY 1984/1988 FDP (-) (deleted)
Inventory, End FY 1988 FDP (deleted)

Fiscal Year	FY 1982 & PRIOR	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	TO COMPLETION
DELIVERIES (During Year)		543	541	399	572	805	1010	1081
AIM-7M		360	541	399	572	805	1010	1081
AIM-7F		183	-	-	-	-	-	-
INVENTORY LOSSES (During Year)								
AIM-7M		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
AIM-7F		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
AIM-7E		(deleted) (Includes 164 Modifications)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
INVENTORY (End of Year Factored)		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
ACTUAL ASSETS								
AIM-7M		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
AIM-7F		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)
AIM-7E		(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)	(deleted)

NOTE: The projected factored assets reflect the difference in relative P_k of the various models. The following percentage factors have been applied: AIM-7E 29%; AIM-7F 86%; AIM-7M 100%.

BUDGET LINE 12 - SPARROW MISSILE (AIM/RIM-7M)

QUESTION: Have any of the FMS letters of offer to Belgium, Greece, Netherlands or NATO been accepted? If so, who will produce these sales and what are the quantities and months of production for each accepted FMS case.

ANSWER: All SPARROW Missile FMS letters of offer to Belgium, Greece, Netherlands and NATO have been accepted. Delivery specifics by country/organization are as follows:

a. Belgium, FMS case N3-P-AAD, 24 missiles under General Dynamics contract for delivery between June and September 1984.

b. Greece:

(1) FMS case GR-P-AIL, 16 missiles under General Dynamics contract and 16 missiles under Raytheon contract, all for delivery between December 1984 and January 1985.

(2) FMS case GR-P-AIY, 100 missiles under Raytheon contract for delivery between May and September 1984. The remaining 132 missiles in this case are scheduled for out-year procurements as follows: 50 missiles each in FYs 84 and 85 and 32 missiles in FY 86.

c. Netherlands, FMS case N3-P-AAE, 26 missiles under General Dynamics contract and 19 missiles under Raytheon contract, all for delivery between October and December 1984.

d. NATO, FMS case N3-P-AAH, up to 1000 missiles scheduled for out-year procurements. The exact quantity procured will depend on individual NATO country requirements.

QUESTION: In addition to the above, what other FMS production is scheduled? What are the quantities by month and year for this production?

ANSWER: Additional FMS production is scheduled for Japan and Saudi Arabia as follows:

a. Japan, FMS case JA-D-YBD, 10 missiles under General Dynamics contract for delivery in February 1984.

b. Saudi Arabia, FMS case SR-D-AFA, 59 missiles under General Dynamics contract and 31 missiles under Ratheon contract, all for delivery between February and May 1984.

QUESTION: What was the actual number of Sparrow Missiles delivered by each contractor during April 1983? For each contractor, how many missiles are they behind the current revised delivery schedule?

ANSWER: The actual number of Sparrow missiles delivered in April by Raytheon was 65, and General Dynamics delivered three qualification articles. Raytheon is behind by 461 missiles on the contract deliveries schedule but will be able to catch up before the end of the FY 1983 contract. General Dynamics is behind by 87 missiles on the contract delivery schedule and will be able to catch up before the end of the FY 1983 contract.

Raytheon is performing within the latest forecast delivery schedule and General Dynamics is two missiles behind.

QUESTION: How are the production start-up problems for the 7M lines alike and different between Raytheon and General Dynamics?

ANSWER: The start-up problems at General Dynamics are associated primarily with the transition from the data and

documentation package stage to production and qualification testing of first articles that are required to insure that the production missiles will meet government requirements. These production start-up problems are not unusual in transitioning from one evolution of Sparrow to the next.

Raytheon start-up problems have resulted from incorporating changes which resulted from testing, procurement of materials that did not meet specification requirements and developing the implementation of automated factory test equipment that will yield efficient high rate production.

In both companies the production start-up problems encountered are being overcome. The production status is improving and schedules are being adjusted to compensate for initial delays. Deliveries are expected to be on schedule during the FY 1983 contract deliveries. No problems are anticipated in meeting the FY 84 schedule requirements.

BUDGET LINE 13 - SIDEWINDER MISSILE (AIM-9L/M)

QUESTION: For the FY 1980 and 81 contracts what were the scheduled deliveries by month and actual deliveries by month for each of the two producers?

ANSWER: The delivery schedules for the FY 1980 and 81 contracts are shown on the attached P-21A sheets:

Appropriation

PRODUCTION SCHEDULE

(DOD EXHIBIT P-21A)

DATE: 4 May '83

Budget Activity: Sidewinder AIM-9M GCS Deliveries - FY81

P-1 ITEM NOMENCLATURE: First AIM-9M Buy (one production source)

SUBHEAD NO.

COST CODE	ITEM/COMP./SERVICE	UNIT	QTY	PRIOR QTY	ACCEPTANCES TO LAST	ALL ANTICIPATED ACCEPTANCES AS OF THIS
RAYTHEON COMPANY						
DEFINITIZED CONTRACT SCHEDULE						
	USN			220		
	USAF			280		
ACTUAL/FORECAST DELIVERIES						
	USN			215	*	
	USAF			120	**	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	FISCAL YEAR																																			
	CALENDAR YEAR																																			
USN										15	11					22	32	42	36	34	18	5														
USAF											18					80	120	140	140	134	72	148	176	230												
USN										15	11					22	0	52	42	49	23	13	8													
USAF											18					60	0	140	134	184	156	144	272	152												

MANUFACTURER'S NAME & LOCATION	PRODUCTION RATES: TOTAL MONTHS	1-63	MAXIMUM	REACHED
A				

PROCUREMENT LEAD TIME	ACTION LEAD TIME: PRIOR T ORDER	APPLIC. LEAD TIME	MANUFACTURING TIME	TOTAL AFTER T ORDER
INITIAL				
REORDER (Previous Source)				

P-1 SHOPP LIST ITEM NO.

PAGE NO

REMARKS

* 5 USN + 10 USAF GCS's were transferred to closed cycle ROCKET contract

Production start-up problems caused the gap between Aug 82 and Feb 83. A one month slip is forecasted in completion of this contract.

Revised 11/77

Appropriation

PRODUCTION SCHEDULE (DOD EXHIBIT P-21A)

Date: 4 May 1983

Budget Activity

Sidewinder AIM-9L GCS. Deliveries - FY80

LAST AIM-9L BUY (two production sources)

CONTRACT CODE	REMARKS/FY DEL YR	MFR	SEAV	PROG QTY	ACCEP PRIOR TO 1 OCT	ALL ANCE DUE AS OF 1 OCT
Ford Aero. & Comm. Corp.						
Contract Schedule						
USN				196		
USAF				1270		
Actual/Forecast Deliveries						
USN				196		
USAF				1270		
RAYTHEON Company						
Contract Schedule						
USN				124		
USAF				780		
Actual/Forecast Deliveries						
USN				124		
USAF				780		

FISCAL YEAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
CALENDAR YEAR							1981												1982												1983						
			16	16	16	16	16	16	16	16	15	16	15	16																						
			96	94	110	112	110	112	110	112	112	114	102	96																						
					44	22	22	44	22	22	20																											
					220	135	135	270	135	135	135	105																										
				20		20		30		20		23		22																							
				108		134		134		134		134		136																							
							20		40		20		22																								
							108		263	8	134	136																										
FISCAL YEAR																																				
CALENDAR YEAR																																				
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FISCAL YEAR																																				
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* The Navy and Air Force will be receiving AIM-9M's vice AIM-9L's. The AIM-9L's will be delivered to Japan when Navy & Air Force take delivery of AIM-9Ms. The AIM-9Ls support the Japan co-production program while allowing the Navy and Air Force to acquire an equal number of AIM-9M's at no additional cost.

BUDGET LINE 14/15 - PHOENIX MISSILE (AIM-54)

QUESTION: For FY 1982, 1983 and 1984 breakout the non-recurring special tooling and funding lines to show how much was spent on rate tooling, special tools, test equipment and any other equipment funded in that line. As a result of the expenditure of these funds, what will be the facilitized monthly rate of production for the AIM-54 missile?

ANSWER: For FY 1982 the $11.548 million budgeted for non-recurring special tooling and test equipment (ST&TE), is being utilized for rate tooling. In FY 1983 $47.586 million was budgeted for ST&TE, of which $27.249 million has been allocated for stress screening tooling and $20.237 million for rate increases. In FY 1984, $22.778 million has been requested for ST&TE, of which, $6.451 million is for stress screening and $16.327 million is for rate tooling. The facilitized monthly rate of production for FY 1982, FY 1983, and FY 1984 will be 20, 40, and 55 units, respectively.

QUESTION: $33.7 million has been added to the program for stress screening tooling. What specifically does this tooling do? In what years' budgets will these funds be requested. When will this tooling be available on the production line?

ANSWER: Stress screening tests components of the missile in environments similar to what will be encountered in the fleet and during flight. Utilization of this equipment will allow earlier identification of causes of missile failure due to assembly or component defects and will reduce rework/scrappage costs. This tooling will significantly improve the reliability of the AIM-54C missile. These funds have been requested in the FY 1983 and FY 1984 budgets. This tooling will be operational approximately 22 months after the procurement is initiated.

QUESTION: $2.9 million is requested in FY 1984 for "product improvement." What specifically will be funds provide for? If these funds provide for developmental work and not modification of production hardware for delivery, why aren't these funds being requested in the RDT&E, Navy appropriation.

ANSWER: The $2.9 million requested in FY 1984 for product improvement is oriented towarded Electronic Counter-Countermeasure (ECCM) survivability improvements and does not change the performance envelope of the missile. The funds will be applied towards a missile reprogrammable memory. The reprogrammable memory allows for logic changes to be incorporated at the missile level, allowing for a quicker reaction time to new Electronic Countermeasure (ECM) threats.

QUESTION: What were the negotiated fixed-price recurring unit costs for the guidance, control and airframe section, propulsion section, safety and arming devices, target detection devices, and the warhead?

ANSWER: The negotiated FY 1982 units costs are as follows:

	Fixed-Price Recurring Unit Cost
Guidance, Control & Airframe	$917,640.00
Propulsion	28,000.00
Safety & Arming Device	8,333.00
Target Detecting Device	Not negotiated
Warhead	2,450.00*

*FY 1981 negotiated price

QUESTION: Over the life of the program, the FY 1984 congressional data sheets indicate that $405.8 million will be requested for advanced procurement while only $314.8 million will be applied as advanced procurement. Last year, the amount appropriated and applied as advance procurement were equal. Explain where this $91 million has gone to.

ANSWER: The $91 million delta in advance procurement dollars can be attributed to two elements. The surge program was developed as a means of buying and storing long lead materials which could be utilized quickly in the event of hostilities. In the FY 1984 budget submission $41 million of the $91 million are for the surge program and are included as advanced procurement dollars. However, it is not treated as advance procurement dollars because the funds are for material to be purchased outside the regular missile procurement. Therefore, although it is budgeted as advance procurement money in FY 1984, it is not applied as advanced procurement in FY 1985. The remaining $50 million difference is due to an error in budgeting advance procurement dollars in FY 1990 and FY 1991, which will be corrected in the next Congressional budget submission. No advance procurement funds are required in FY 1990 due to the fact that no FY 1991 procurement is currently planned.

QUESTION: Identify how the $41 million requested for surge capability will be broken out between crucial missile components and other long lead items or components. Identify how and when all of these materials will be used or consumed within this program.

ANSWER: Of the $41 million available in the surge program, $4.6 million will be utilized for Government Furnished Equipment (GFE) long lead material for the propulsion section, composite fuse, armament section and warhead. $34.7 million will be provided to Hughes Aircraft for material to support a surge profile which delivers the first surge missile 10 months after surge go-ahead and ramps up to a missile production delta of 15 missiles per month over non-surge production, 15 months after go-ahead. The $34.7 million establishes and maintains a tooling inventory of material which have lead times in excess of 10 months; $0.7 million will be utilized for additional GFE tooling requirements and $1.0 million will be reserved for additional refinement of surge planning.

QUESTION: Aside from losing the surge capability, what would be the programmatic cost impact of delaying the $41 million surge capability investment until another year?

ANSWER: Utilizing the current Office of Management and Budget escalation rates, a one-year delay in the surge program would require an additional $2.6 million to procure the same quantity of material. A two-year delay would require an additional $5.014 million and a three-year delay would require an additional $7.720 million.

BUDGET LINE 16 - HARPOON MISSILE (AGM-84)

QUESTION: What specific hardware/and or services will the $10.5 million requested for product improvement buy in FY 1984?

ANSWER: The $10.5 million request for product improvement in FY 84 is for the following items.

a. Seeker improvements designed to improve producibility, reliability and survivability.

b. Secure telemetry. This will incorporate secure telemetry in the Harpoon exercise section.

c. Fuel control electronics improvement. This will incorporate the functions of the present fuel control device and the electronic control amplifier into a single state-of-the-art unit which will be more reliable, easier and cheaper to produce, and will correct a known parts obsolescence problem.

QUESTION: What were the negotiated recurring unit costs for the Harpoon missile body, warhead, engine, launch kits, and booster on the FY 1983 contracts?

ANSWER: The negotiated FY 83 unit prices are as follows:

		NEGOTIATED (Dollars in Thousands)
Harpoon missile body		435.9
Warhead		20.0
Engine		59.2
Booster		38.5
Launch kits:	AIR	34.3
	ASROC	64.0
	TARTAR	69.0
	CAP/CAN	54.8

It should be noted that these negotiated contract figures include hardware as well as data and related engineering costs. The engineering and data which are negotiated into the missile contract are budgeted under procurement support.

HARM MISSILE (AGM-88)

QUESTION: What, if any, are the differences between the AGM-88A used by the Navy and that used by the U.S. Air Force?

ANSWER: There is no difference between the AGM-88A used by the Navy and that used by the U.S. Air Force.

QUESTION: For preparation of the FY 1984 budget, what is the correct recurring unit costs for a missile procured with FY 1984 funds assuming a buy of 515 missiles? Provide a breakout of this number across major components of the system.

ANSWER: The following is a breakout by major component of the recurring flyaway costs as contained in the Navy FY 1984 budget request:

Guidance, Control, and Airframe	$310,434
Propulsion	70,435
Safe and Arm Mechanism	3,478
Target Detecting Device	19,565
Warhead	4,348
Integration and Assembly	5,652
Contractor Engineering/Program Management	87,826
Procurement Data	5,217
Recurring Flyaway Unit Cost, FY 84 $	$506,955

QUESTION: When will a decision be made concerning the establishment of a second source of production for the HARM program?

ANSWER: A decision concerning the establishment of a second source of production is imminent.

QUESTION: What is the estimated cost by year of establishing the second source for this program? By budget year and by service show the source of funds for establishing this second source.

ANSWER: The budget estimate of funds required to qualify a second source is:

	FY 1981	FY 1982	FY 1983
USN	5.0	-	40.0
USAF	-	-	40.0
TOTAL	5.0 (R&D)	-	80.0 (Procurement)

QUESTION: What rate of production is Texas Instruments currently facilitized for? What rate of production will the second source be facilitized for?

ANSWER: Texas Instruments is currently capable of building approximately 8 missiles per month, and is facilitizing under the FY-82 contract toward an exit rate of 25 missiles per month. All three potential second source contractors have recently signed a memorandum of agreement by which the government will provide sufficient special tooling and test equipment for a 25 missile per month rate, after which the contractor will capitalize all further special tooling and test equipment requirements to a special overhead account and charge it back over a seven year period, with no provision for indemnification in event of program cancellation.

QUESTION: What specifically will the $52.5 million requested in FY 1984 for special tooling and test equipment be used for? Specify how, if at all, these funds relate to the second sourcing activity.

ANSWER: The $52.4 million requested in the Navy budget is for special tooling and test equipment for Texas Instruments and for the second source contractor. The amounts for each are as follows:

Texas Instruments	$27.6 million
Second Source	24.9 million
Total	$52.5 million

The FY-84 $27.6 million will fund the Navy's share (approximately 51%) of the cost to increase Texas Instruments' production capacity from 30 to 40 missiles per month, including $3.8 million that will be required for capacity increases of major subcontractors. The $24.9 million is the Navy's 50% share of the cost to increase the second source contractor's production capacity from 3 to 10 guidance and control sections per month. Rocket motors, warheads, target detectors, and certain pieces of handling equipment will be furnished by the government to the second source through FY 1985.

QUESTION: Briefly summarize the results of the March 30 DSARC. What specifically were the DSARC recommendations with respect to dual or single source production?

ANSWER: A DSARC III for HARM was held on 30 March 1983, and a decision was made in favor of full scale production. There was disagreement concerning the business strategy. The major issue is whether or not to develop a second source prime contractor for HARM. A decision on this issue is imminent.

QUESTION: What will be the programatic impact if the Air Force and Navy cannot agree on an approach to dual or single source of production?

ANSWER: It is expected that both services will procure HARM in accordance with whatever business strategy is approved.

QUESTION: Is it true that Texas Instruments FY 1983 contract proposal came in significantly lower (20%) than expected? If so, provide a revised program cost display for FY 1983 and FY 1984 which is consistent with the 30 March DSARC SECDEF decision memo.

ANSWER: Texas Instruments' initial proposal for FY 1983, received in June 1982, was higher than the government estimate. In March 1983, TI provided a letter offer of not-to-exceed prices for the FY 1983 buy and options for the FY 1984 and 85 buys, all on a firm fixed price basis. The FY 1983 portion of this letter offer would provide more missiles for the budget than TI's initial proposal for FY 1983, and on a unit price basis is about 17% lower than their earlier proposal; it is less than 5% below the government's estimate contained in the budget. The three-year offer can be afforded only if the entire FY 1983 through 85 Air Force and Navy HARM budgets as contained in the January 1983 President's Budget, less government management costs, go to TI; the offer was made in an attempt to persuade the government to drop its plans to second source HARM. If either service's budget were reduced in any of the three years, the offer would be unexecutable. Since a DSARC decision has not yet been made, a revised cost display consistent with the decision cannot be provided at this time.

It is vital to making HARM affordable that production be built up to an efficient rate. Once a basic HARM capability is established, a contractor can at least double his production from one year to the next. The efficient production rate for a HARM contractor is about 2,000 missiles per year. In FY 1981, the first year of production, 80 HARM's were procured. The combined Navy and Air Force budgets for FY 1982 procured 236 missiles. Production buildup has been seriously thwarted by Congressional action in December 1982 which deleted $94.6M from the joint-service budget of $336.6M for FY 1983. As a result, production in FY 1983 can be increased by only about 50% over that of FY 1982. If the services' budgets through FY 1985 are undisturbed (after five years of HARM procurement), the production rate will be at only half the efficient rate.

QUESTION: For FY 1982 and FY 1983 to date, what are the scheduled and actual missile deliveries by month?

ANSWER: Scheduled and actual deliveries to date are as follows:

MONTH	DEC 82	JAN 83	FEB 83	MAR 83	APR 83
SCHEDULED	8	5	5	5	7
ACTUAL	10	0	6	4	14

BUDGET LINE 18 STANDARD MISSILE

QUESTION: Describe the multi-year contracts currently open in the STANDARD Missile Program. Identify associated contractors and yearly options with quantities and projected costs?

ANSWER: The STANDARD Missile (SM-1) program awarded a multi-year contract in January 1982 for the loading of Mark 56 Dual Thrust Rocket Motors. The contract was awarded to Aerojet Tactical Systems as a Firm Fixed Price contract with Economic Price Adjustments in the areas of labor, material and energy. The following is the schedule of quantities and costs awarded in the five year contract:

($ Thousand)

	TOTAL CONTRACT		(SM-1 ONLY)	
	QUANTITY	DOLLARS	QUANTITY	DOLLARS
FY 1982	907	17,755	600	12,250
FY 1983	818	12,464	650	9,663
FY 1984	859	14,760	700	9,070
FY 1985	720	10,059	700	9,054
FY 1986	722	11,223	700	10,882

In addition to the costs cited above, costs for production of the metal parts at Naval Ordnance Station, Louisville and propellant chemicals at Naval Ordnance Station, Indian Head must be included to establish the total cost for the Mark 56 Rocket Motor. The SM-1 quantities are shown on the right. Total quantities also include SM-2 and Foreign Military Sales as authorized.

QUESTION: For each missile type, what was the schedule and actual missile deliveries by month for FY 1982 and FY 1983 to date?

ANSWER: The planned and actual deliveries for FY 1980 procurement (FY 1982 deliveries) and FY 1981 procurement (FY 1983 deliveries) follow:

	FY 1982												FY 1983						
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
STANDARD MR SM-1																			
FY 1980																			
PLAN	37	40	42	45	45	46	46	46	46										
ACTUAL	37	40	42	45	45	46	46	46	46										
FY 1981																			
PLAN										41	41	41	41	42	42	42	42	42	42
ACTUAL										42	42	42	42	43	44	44	44	46	46
STANDARD MR SM-2																			
FY 1980																			
PLAN											15	15							
ACTUAL											15	15							
FY 1981																			
PLAN													5	5	6	6	6	6	6
ACTUAL													5	5	6	6	6	6	6
STANDARD ER SM-2																			
FY 1980																			
PLAN	6	6	6	6	5	5	5	4	3	2	2								
ACTUAL					0	15	11	12	12										
FY 1981																			
PLAN													13	17	18	20	22	26	28
ACTUAL													13	17	18	20	22	26	28

QUESTION: Your FY 1984 program proposes the use of cost plus contracts for the full production of STANDARD Missile 2 missiles. Justify the use of a cost plus contract when several hundred of each type missile will have been produced.

ANSWER: The FY 1984 budget request is for procurement of STANDARD Missile 2 (SM-2) Block II. The only SM-2 Block II production to date follows:

FY 1982 Pilot Production SM-2 Extended Range (ER) 35 missiles
FY 1983 Pilot Production SM-2 Medium Range (MR) Aegis 30 missiles
FY 1983 Limited Production SM-2 ER 140 missiles

The first production delivery will not occur until April 1984. Neither the FY 1982 nor the FY 1983 Block II quantities provide for full rate production. The majority of costs on the proposed contract are associated with acquisition of a missile which has not yet been produced in a complete production process. To award this contract on any basis other than cost reimbursement would result in an inflated acquisition price, as the contractor would include numerous contingencies resulting in a significantly higher over all cost to the Government.

It is the intent to transition to a Fixed Price Contract after experience has been gained in the production process, as was done in SM-1 Block VI and SM-2 Block I procurements.

QUESTION: Are any of the Standard Missile 2 Medium Range (SM-2 MR-A-II) and SM-2 Extended Range (SM-2 ER II) produced as part of the Multi-year contract? If so, when and how was Congressional approval of these Multi-year contracts obtained?

ANSWER: No multi-year contracts have been awarded for the Standard Missile 2 Medium Range or Extended Range.

QUESTION: (a) For FY 1983 and FY 1984, identify how the funds requested for Special Tooling and Test Equipment will be invested by contractor and location.

(b) Identify what the investment of these funds will increase the monthly production rates to for the three principal missile types Standard Missile I Medium Range, Standard Missile II Medium Range and Standard Missile II Extended Range.

ANSWER: (a) A summary of funds requested in FY 1983 and FY 1984 by contractor and location follows: (Millions)

CONTRACTOR	FY 1983	FY 1984
General Dynamics, Pomona California (Guidance Control and Autopilot)	33.0	17.9
Motorola, Scottsdale, Arizona (Mod 5 Target Detecting Device)	6.4	2.5
Thiokol, Huntsville, Alabama (Propulsion (ER) Booster)	3.4	2.5
Thiokol, Wasatch, Utah (Propulsion (SM-2 MR) Mark 104)	11.4	4.0
Aerojet General Corporation, Sacramento,CA (Propulsion SM-1 MR Motor)	6.1	.9
Naval Ordnance Station, Louisville,Kentucky (Metal Parts SM-1 Motor)	.7	.6
Chamberlain Manufacturing, Waterloo, Iowa (Metal Parts Mark 115 Warhead)	.6	-0-
Atlantic Research Corporation,Gainesville,VA (Propulsion ER Sustainer)	1.0	-0-
Intercontinental Manufacturing Company	.8	-0-

CONTRACTOR	FY 1983	FY 1984
Garland, Texas (Metal Parts for ER Booster)		
Naval Ordnance Station, Indian Head, MD (Propulsion)	.9	-0-
Competitive XYZ (Mark 115 Warhead)		1.0
TOTAL	64.3	29.4

(b) The investment of these funds will allow for the timely production testing of the various components of three principal missile types according to the FYDP procurement rates. The Special Tools and Test Equipment (ST&TE) budgets for FY 1983-FY1984 have been carefully analyzed in their preparation with the main objective being the capability to produce the number of budgeted missiles when required. There is no factor for early delivery of ST&TE. Budgets are developed by first considering the monthly production rates that will be required to meet Navy planned deliveries. Then for each major component such as Guidance Control and Autopilot, Fuze and Rocket motors a manufacturing setback time is assigned to allow for hardware testing on the necessary Test Equipment. From this data, the necessary procurement date for each piece of Test Equipment is determined, they are then budgeted accordingly. The ST&TE unique to the SM-2 Block II missile has initial build-up in production capacity taking place in the FY 1984-FY 1986 timeframe which requires procurement in a timely fashion.

Therefore, provision of the FY 1983 and FY 1984 ST&TE funding is essential to meet missile deliveries.

The following table shows the build up of planned monthly missile delivery which requires additional Test Equpment:

	FY 1984	FY 1985	FY 1986	FY 1987
SM-1 BLOCK VI	60	63	60	95
SM-2 MR	11	31	59	69
SM-2 ER	38	43	33	43
TOTAL	109	137	152	207

QUESTION: When considering total productive capacity of the prime (General Dynamics, Pomona), what is the maximum production for Standard Missiles of all types, assuming that FY 1984 requested funds for Special Equipment and Tooling is provided. When will this capability be in place?

ANSWER: The Tooling and Test Equipment requests in FY 1984 will provide the following per month capability in calendar year 1986.

Standard Medium Range 1 (SMR-1)	75
Standard Missile 2 Medium Range/Extended Range	120

BUDGET LINE 19 ROLLING AIRFRAME MISSILE

QUESTION: Briefly describe how the Rolling Airframe Missile (RAM) is different from other missiles produced at General Dynamics, Pomona, namely the Standard missiles. In light of the significant production capability for Standard missiles at General Dynamics, Pomona, what new tooling and special Test Equipment is required to build the first thirty pilot missiles on production tooling.

ANSWER: The RAM missile differs from Standard missile in several major areas. Physically, Standard is a thirteen inch diameter, fifteen foot long, one thousand and eighty pound missile versus the RAM five inch diameter, ten foot long, one hundred and sixty pound missile. More important, from a manufacturing viewpoint

is that the Standard missile uses semi-active radar guidance in a stabilized airframe while RAM uses [deleted] [deleted] guidance in a rolling airframe. The RAM [deleted] [deleted] guidance, in conjunction with the rolling airframe control system and smaller size, results in significantly different tooling and special test equipment. At lower levels of assembly specific [deleted] control system test equipment are required based on the RAM design requirements and at higher levels of assembly, the test equipment must include rolling fixtures with [deleted] sources. Therefore, due to the basic design differences and associated testing requirements the Standard missile tooling and test equipment cannot be used for RAM production.

BUDGET LINE 21 - HELLFIRE MISSILE

QUESTION: Provide the details of the AH-1J/T modification program for installing the Hellfire missile launcher; by quarter for fiscal year, provide the schedule of installations.

ANSWER: The AH-1J Hellfire interface is relatively uncomplicated compared to the AH-1T Hellfire integration because the AH-1T requires a cockpit reconfiguration and integration of TOW and Hellfire displays. The Navy AH-1J Hellfire integration incorporates Hellfire system hardware developed by the Army for use on the AH-64 helicopter. The Navy research and development (R&D) effort, incorporating shipboard interface elements into the aircraft system, will be completed in the second quarter of FY-1984. AH-1J Hellfire modifications are scheduled for installation as follows:

FY-1986	
First Quarter	1
Second Quarter	0
Third Quarter	12
Fourth Quarter	24
FY-1987	
First Quarter	21

The installation schedule reflects initial production lead time of two years.

The AH-1T modification program is also based on the Army-developed system hardware but requires additional R&D effort to integrate the cockpit portion of the Hellfire weapon system due to space constraints imposed by the TOW missile system. Completion of the AH-1T Hellfire R&D program is scheduled in late FY-1986. Installation of the AH-1T modification is scheduled as follows:

FY-1987	
First Quarter	1
Second Quarter	0
Third Quarter	12
Fourth Quarter	24
FY-1988	
First Quarter	11

QUESTION: Provide a funding profile for these modifications and installation to include where in the Navy budget these funds are found.

ANSWER: The Navy APN-5 (Aircraft Modification) Budget includes the Hellfire retrofit for AH-1Js and AH-1Ts in Item No. 54 under OSIP 20-84. The APN-5 procurement budget profile is as follows:

	Dollars in Millions
FY-1984	$ 8.952
FY-1985	45.982
FY-1986	24.202
FY-1987	5.651

BUDGET LINE 30 - HARPOON MISSILE MODIFICATIONS

QUESTION: The justification materials show no FY 1985 and FY 1986 funding for the seeker improvements to the Harpoon guidance section using the UK seeker. Does that mean that the requested FY 84 funding completes this modification program? If not, what is the outyear funding profile and schedule for this modification program?

ANSWER: The FY 1984 funding request will complete the modification program for the seeker improvements to the Harpoon guidance section using the UK seeker.

BUDGET LINE 35 - WEAPONS INDUSTRIAL FACILITIES

QUESTION: Last year congressional approval was given for the establishment and use of a surcharge to various industrially funded activities to fund capital improvements, capital maintenance and various modernization projects. In light of that authorization and the Navy's embracement of that policy, why are any of these FY 1984 funds necessary?

ANSWER: The surcharge established and approved by Congress last year was for Navy Industrial Funded Government-Owned and Operated Shore Facilities. The provisions of this surcharge did not include or involve the Government-Owned-Contractor Operated Defense Plants funded under the Weapons Industrial Facilities Budget Line. Funds set forth in this FY 1984 budget are essential to modernize, maintain, and upgrade the Government-Owned-Contractor Operated Plants for current production of Standard Missiles, Trident Missiles, Gun Mounts, and Close-In-Weapons Systems. In addition, these plants are part of the mobilization industrial base.

MK-48 TORPEDO

QUESTION: For the FY 1979 through FY 1982 production contracts, identify the target unit price, the ceiling unit price, the budgeted unit price, and the actual recurring price at contract completion.

ANSWER: The Government's best estimate, excluding FMS and Torpedo MK-48 Modification funds is as follows:

	($ in Thousands) Target Price	Ceiling Price
FY 1979 Contract	$44,704	$46,326
Quantity	127	127
Unit Price	$352	$365
FY 1980 Contract	$60,192	$62,328
Quantity	144	144
Unit Price	$418	$433
FY 1981 Contract	$50,598	$52,462
Quantity	100	100
Unit Price	$506	$525
FY 1982 Contract	$80,561	$83,502
Quantity	144	144
Unit Price	$559	$580

It should be noted that these contracts are not completed and are subject to redetermination. Since there are no projected overruns on these contracts, the budgeted unit price is the same as the target unit price.

The actual contract completion unit price for the FY 1979 contract is $352. Because of the protracted delivery period under the FY 1980 through FY 1982 contracts, the final unit price or actual recurring price under these contracts is not yet finalized.

QUESTION: Briefly describe why it is in the best interest of the Navy and Government to continue with an FPI contract.

ANSWER: A Fixed Price Incentive contract provides the proper cost risk-phasing arrangement desired. This is done with a "tight" 4 per cent ceiling above the target price and a 50/50 (Navy/contractor) share of the cost based incentive. Additionally, the Fixed Price Incentive contract structure provides for detailed actual cost reporting, a cost reduction incentive and Navy ownership of residual material not provided by a Firm Fixed Price Incentive contract structure.

QUESTION: What is the status of Navy efforts to increase the FY 1983 program to the sustaining rate of production of 12 a month or 144 for the year?

ANSWER: It is anticipated that the contract will be awarded by 31 May 1983 to procure 144 torpedoes within budgeted funds.

BUDGET LINE 41/42 - MK-46 TORPEDO

QUESTION: Provide a copy of the multi-year justification materials exhibit 3 and 4 submitted with the FY 1983 justification materials annotated to reflect the results of negotiations to date on the FY 1983 - FY 1985 multi-year contract.

ANSWER: Exhibits 3 and 4 marked up to indicate the current status of negotiations are attached:

EXHIBIT NO. 3

TORPEDO MK 46 (HEARTIP) FUNDING PLAN COMPARISON

WEAPONS PROCUREMENT, NAVY APPROPRIATION
($ in Millions)

	FY 1983	FY 1984	FY 1985	TOTAL
Quantity	440	1200	1565	3205
Annual Program				
End Item	105.7	271.1	363.0	739.8
Less Advance Funding				
Net Request				
Advance Funding				
(For FY 1984)		-NONE-		
(For FY 1985)				
Total Budget Request	105.7	271.1	363.0	739.8
Multiyear Program				
End Item	89.2	~~250.0~~ * 297.2	~~$294.8~~	~~$644.2~~
Less Advance Funding	0.0	(-)35.5	~~326.0~~ (-)29.9	~~460.0~~ (-)65.4
Net Request	89.2	~~214.5~~ 213.7	~~294.9~~ 294.9	~~$577.8~~
Advance Funding				
(For FY 1984)	35.5	29.9		35.5
(For FY 1985)	(35.5)	(29.9)		29.9
Total Budget Request	124.7	~~240.0~~ * 243.6	~~$294.9~~	~~$644.2~~
Proposed Savings	+19.0	~~(-)27.5~~ * (-)27.5	~~326.0~~ * (-)68.1	~~460.0~~ (-)76.6

Outlays

	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	TOTAL
Annual	26.6	137.1	277.4	259.1	39.3	0.3		739.8
Multiyear	44.2	144.9	~~236.0~~ 213	~~300.0~~ 270	32.5	0.3		~~$644.2~~ 600.0
Difference	+17.6	+ 7.8	~~(-)41.4~~ (-)63.1	~~(-)40.9~~ (-)32.1	(-)6.8	-		~~(-)76.6~~ (-)72.6

* Reflects negotiations to date

EXHIBIT NO. 4

TORPEDO MK 46 (NEARTIP) MULTIYEAR CONTRACT FUNDING PLAN

WEAPONS PROCUREMENT, NAVY APPROPRIATION
($ in Millions)

	FY 1983	FY 1984	FY 1985	TOTAL
Quantity	440	1200	1565	3205
Annual Program				
End Item	102.2	259.2	346.5	707.9
Less Advance Funding				
Net Request				
Advance Funding		-NONE-		
(For FY 1984)				
(For FY 1985)				
Total Budget Request	102.2	259.2	346.5	707.9
Multiyear Program				
End Item	85.7	~~+ 237.3~~ ~~241.7~~	~~308.3~~ ~~308.7~~	~~634.3~~ ~~636.1~~
Less Advance Funding	0.0	(-)35.5	(-)29.9	(-)65.4
Net Request	85.7	~~+ 206.2~~ ~~201.8~~	~~278.0~~ 278.4	~~570.1~~ 565.9
Advance Funding	35.5	29.9		35.5
(For FY 1984)	(35.5)			29.9
(For FY 1985)		(29.9)		
Total Budget Request	121.2	~~+ 231.7~~ ~~236.1~~	~~278.4~~ ~~278.0~~	631.3 ~~636.1~~
Proposed Savings	+19.0	~~(-)23.1~~ (-) 27.5	~~(-)67.7~~ (-) 68.1	~~(-)71.8~~ (-) 76.6

Outlays	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	TOTAL
Annual	25.6	131.2	265.3	251.1	34.7			707.9
Multiyear	43.2	139.0	~~224.2~~	~~201.8~~	27.9			~~636.1~~ 631.3
Difference	+17.6	+ 7.8	~~(-)41.1~~ (-)43.1	~~(-)49.3~~ (-)52.1	(-)6.8			~~(-)71.8~~ (-)76.6

Funding profile in support of Multi-year procurement based on FY Congressional FYDP. Submitted to ASW and forwarded to OSD (Hughes) 4-8-83

MINE MK 60, CAPTOR

QUESTION: Provide a table showing the procurement profile for the MK-60 CAPTOR System before it was restructured and as it is currently restructured. Explain why the restructuring occurred. If restructuring was due to technical or production problems, fully describe the specifics of those problems, the corrective action taken to date, and the date when corrective actions will have been proven out.

ANSWER: The procurement profile before and after the decision to adjust the program are shown as follows:

Before adjustments:

Prior	FY 83	84	85	86	87	Total
[deleted]	500	500	500	600	493	[deleted]

After adjustments:

Prior	FY 83	84	85	86	87	Total
1604*	300	300	475	600	493	3772

* Includes 54 developmental units.

CAPTOR performance has been demonstrated to meet or exceed the requirements for which it was designed. However, it has been decided to adjust the program to explore the possibility of expanding CAPTOR operational capabilities, particularly against [deleted]. Plans to implement this additional CAPTOR R&D are currently being staffed within DOD, anticipating a completion date of FY 85.

BUDGET LINE 43 - MK-60 CAPTOR MINE SYSTEM

QUESTION: The FY 1984 justification materials note that FY 1984 funds are required to support "Navy support and proofing efforts for CAPTOR units procured in prior years." How much of the FY 1984 funds are required for this effort and identify by program year the amount required.

ANSWER: $9,050,000 of the FY 1984 funds are required to support Navy support and proofing efforts for CAPTOR units procured in prior years. The FY 1984 funds required for each program year are as follows:

	PROGRAM YEAR 1982	PROGRAM YEAR 1983
FY 1984 Funding	$6,500,000	$2,550,000

QUESTION: Under the full funding concept, why shouldn't this required support be provided by reprogramming in the program year?

ANSWER: Only those torpedoes or systems which contractually must undergo proofing as a basis for final contractual payment have been rephased to comply with the full funding criteria. As the prime contract with Goodyear does not meet this criteria, Navy Acceptance Test and Evaluation efforts for the CAPTOR system are annualized.

BUDGET LINE 44/45 - MK-30 MOBILE TARGET

QUESTION: For FY 1982 and FY 1983 to date, what have been the number of mobile targets delivered and accepted by month?

ANSWER: The following details deliveries of MK-30 targets for Navy acceptance testing to date:

FY 1982	O	N	D	J	F	M	A	M	J	J	A	S
Delivered				1			1				2	1
Accepted				-			-				-	-
FY 1983	O	N	D	J	F	M	A	M	J	J	A	S
Delivered						2	3	1				
Accepted			1			-	-	-				

There are now two of the delivered Mobile Target MK-30 that have completed testing and are ready for acceptance. These targets will be accepted by Navy when all of the open documentation issues are resolved. This includes status of accounting of configuration and closure of open discrepancy reports.

QUESTION: The January 1983 P-21 display submitted with the 1984 budget justification materials indicates that deliveries on the first year (1978) contract are at least one year behind. If this is true, on what basis can Congress conclude that (1) the design is actually stable, (2) the costs are in fact known and stable, and (3) that the multi-year contract can indeed be executed?

ANSWER: Goodyear Aerospace Corporation (GAC) was the successful bidder in 1978 for the MK-30 program and was awarded a contract to build 22 MK-30 Mod 1 ASW Mobile Targets. Since the last targets procured before the FY 1978/FY 1979 buy were produced by Northrop in 1973, it was GAC's charter to verify and update the design. As a result approximately 800 engineering change proposals have been generated to date. However, where many of these earlier engineering changes were collective, they are now specific as well as fewer in number. As an example, only 262 engineering changes were processed in 1982 and 85 have been processed to date in 1983.

In addition to the design changes that have affected delivery of the MK-30 targets procured in FY 1978 and FY 1979, there have been other problems which have resulted in delays in the deliveries. Specifically, there was a six month slip in the program early in calendar year 1982 which was caused by Goodyear's failure to monitor the quality control at a vendor manufacturing the Medium Frequency Projector. Additionally, in December 1982 there were reported in water acoustic measurement failures which were subsequently diagnosed as test set failures.

The submit for a multi-year procurement was based on a budgetary proposal from Goodyear Aerospace Corporation. Goodyear proposals were based on their knowledge gained to date as prime contractor on the MK-30 Mobile Target Program. Experience resulting from prior assembly and test of targets was incorporated into the pricing.

As a result of the above, the Navy feels that execution of the planned FY 1984 through 1986 multi-year contract is desirable from a cost savings standpoint and achievable.

QUESTION: In light of the continuing requirement for these mobile targets, what would be the impact of delaying the negotiations and execution of a multi-year contract until FY 1985?

ANSWER. If the Navy were directed to execute an option to the FY 1983 contract to include the planned FY 1984 procurement of 7 targets, the total funding requirement in FY 1984 would be $14,200,000 vice the $22,100,000 currently requested. Execution of a multi-year contract in FY 1985 through FY 1987 under this scenario would require the addition of $13,000,000 to the FY 1985 column of the FY 1984 President's Budget request. If, however,

the Congress were to delete the seven targets and funding requested in FY 1984 and direct that the planned multi-year commence in FY 1985, an additional $16,000,000 would be required over the FY 1985 column of the FY 1984 President's Budget request. The $3,000,000 difference in FY 1985 results from a 17 month break in deliveries which necessitates recertification of the contractor's vendors and the requirement to refurbish tooling that must be placed in storage as a result of the production gap.

MK 48 TORPEDO MODIFICATION

QUESTION: Since engineering design of this modification will not be completed until first quarter of FY 1984, when will the specific list of production tooling, and test equipment and production equipment be finalized?

ANSWER: A preliminary list of production tooling, and test equipment is currently available and will be formally submitted by Hughes to the Navy in August 1983.

QUESTION: Will the ADCAP capability be added or incorporated into the ongoing production of MK 48 torpedoes? If so, will ADCAP kits be provided to GOULD, Inc. or will Gould also produce the new necessary components?

ANSWER: ADCAP capability will not be included in the ongoing production program. It will be incorporated into the existing MK 48 inventory through a modification program.

QUESTION: In light of the existence of the full funding concept, what would be the impact of fully funding the materials and fabrication of the first 66 ADCAP kits in the FY 1985 budget?

ANSWER: If the FY84 WPN funding was zeroed and the first 66 ADCAP kits fully funded in FY85, the ADCAP IOC would be delayed a year and the total program cost would increase by more than $300 million due to inflation and a protracted transition from development to production. Maintaining the contractor and government team during FY84 would require increasing the FY84 RDT&E budget by about $28 million to limit the IOC delay to a year.

AMMUNITION PROCUREMENT, NAVY

GENERAL PURPOSE BOMBS

QUESTION: The FMU-139/B replaces the MK-344 and MK 376/117 fuzes. What improvements does it offer and how does its price compare with the replaced fuzes?

ANSWER: The FMU-139/B will replace the MK 344 and MK 376 electronic fuzes. It does not replace the FMU-117. The FMU-117 development was terminated prior to production and the program was absorbed into the FMU-139 program. The FMU-139 provides expanded inflight selectability of arming delays and vastly improved safety features. Since the MK 344/376 fuzes are obsolete and no longer in production, "then year" cost comparisons with the FMU-139 cannot be made. An FMU-139 procured in the mid 1980's will be much more costly than a 344/376 purchased in the mid 1960's by virtue of inflation alone.

QUESTION: What were the results of the initial operational evaluation tests of the FMU-139/B scheduled for completion in mid-March 1983?

ANSWER: The OT-IIA tests of 50 fuzes were very favorable, but the official test results have not been published.

QUESTION: Assuming successful testing of the FMU-139/B, does the Navy have fiscal year 1983 funds available to reprogram in order to procure low rate initial production quantities?

ANSWER: The Navy is currently considering submitting a DD-1415 Reprogramming Action to accelerate FMU-139 production from FY-84 to FY-83. Such a reprogramming request would be submitted after an Approval for Limited Production (ALP) decision currently scheduled for May 1983.

QUESTION: When will the FMU-139/B be approved for service use?

ANSWER: A Sponsor's Program Review (SPR) is scheduled for 20 May 1983. This will be the forum for a production decision.

QUESTION: The Navy is requesting $18.8 million for a quantity of 25,000 FMU-139/B fuzes in fiscal year 1984 while the Air Force, is requesting $27.9 million for the same quantity. Why are the requested dollars different when the quantities are the same?

ANSWER: The requested dollars are different because:
- The Air Force will buy the FZU-37 unit with their fuzes whereas the Navy will not.
- Our prices are based on the latest production estimates.

QUESTION: Does the FMU-139/B also replace the FMU-124? If yes, why is the Navy requesting fiscal year 1984 procurement funding for FMU-124 fuzes? Does the Navy have a continuing requirement for the FMU-124 fuzes? Does the Navy have a continuing requirement for the FMU-124 even after the FMU-139/B is approved for use?

ANSWER: The FMU-139 does not replace the FMU-124 at this time. The FMU-124 electrical fuze requires a bomb-mounted, electrical power generator similiar to the FZU-37 on the Air Force version of the FMU-139. No operational testing or logistics support of the FMU-139/B with the FZU-37 is planned by the Navy in the current development program. Unless a follow-on test program is implemented to evaluate the FMU-139/B fuze with the FZU-37 on the AV-8A/C, there will be a continuing requirement for the FMU-124 to support the AV-8A/C laser guided bomb requirement. Based on the projected AV-8A/C inventory, this small LGB requirement continues to diminish.

QUESTION: There is no forecast consumption through the end of the fiscal year 1984 funding delivery period for the FMU-124. Why then, should the fiscal year 1984 request be funded?

ANSWER: FY-84 funding for FMU-124 is required to satisfy the present War Reserve funding requirement for LGB's dropped from AV-8A/C aircraft. There is currently no training allocation of

LGB's to be dropped from AV-8A/C, but a War Reserve requirement exists that can only be satisfied by the FMU-124 fuze.

LASER GUIDED BOMB KITS

The Navy's Other Procurement Navy (OPN) fiscal year 1984 budget request includes about $9.9 million for 350 Low Level Laser Guided Bomb Kits - Paveway III - for MK82 bombs.

QUESTION: Operational Test and Evaluation of LLLGB is scheduled for March 1984 with approval for limited production in July 1984. Why is the Navy requesting FY 84 procurement funding for this item?

ANSWER: The Navy operational test and evaluation will be a follow-on to the already completed Air Force Operations Evaluation and Follow-on Test and Evaluation, and as such will involve little risk. The Navy has to procure laser guided bomb kits as soon as possible since inventory levels of laser guided bombs are currently minimal and expected to remain so. The current schedule indicates the earliest the Navy could buy Paveway III is July 1984 and would require FY 1984 funds.

QUESTION: If the Air Force development slips, what does the Navy plan to do with the FY 1984 funding for LLLGB?

ANSWER: Navy inventory levels of laser guided bomb kits are minimal. If the Air Force development slips, the Navy will procure Paveway II laser guided bomb kits.

QUESTION: When will the FY 1984 procured LLLGB kits be delivered?

ANSWER: In March 1985.

QUESTION: What are the major improvements of LLLGB over the predecessor LGB kits? How do the two kits compare in unit price?

ANSWER: Both the LGB and LLLGB are glide weapons and are not powered. To attain maximum range, LGBs must be delivered at high speed in a loft or toss maneuver. LLLGBs are capable of beingdelivered in level flight thus reducing exposure of the delivery aircraft to enemy defensive weapon systems. Other comparisons are as follows:

	LGB	LLLGB
Maximum Range	(deleted)	(deleted)
Minimum Release Altitude for Maximum Range	(deleted)	(deleted)
Seeker Field of View	(deleted)	(deleted)
Seeker Scan Modes	(deleted)	(deleted)
Glide Ratio	(deleted)	(deleted)

	LGB	LLLGB
Circular Error Probable (Accuracy)	(deleted)	(deleted)
Guidance	Pursuit	Proportional
Control	Bang-Bang	Adaptive Proportional
Unit Cost	$8,447 (FY 1982)	$29,319* (FY 1983 not-to-exceed price)

*Final unit costs for the MK 82 LLLGB are not known because the Air Force is still in negotiations. Costs are expected to decrease by 10-20% in the outyears as procured quantities increase.

We understand the Navy is developing boosted laser-guided bomb kits (referred to as SKIPPER) for the MK83 bomb.

QUESTION: How many SKIPPER kits does the Navy plan to purchase? Why are SKIPPER kits funded under the Weapon Procurement, Navy appropriation and not OPN?

ANSWER: SKIPPER procurement funds have not been requested; however, consideration is being given to the possibility of an FY 1983 reprogramming which would procure [deleted] kits. This reprogramming would be accomplished in the Other Procurement, Navy appropriation.

QUESTION: Please provide a breakout of SKIPPER and LLLGB components and related unit cost.

ANSWER: The answer appears on the following chart:

	SKIPPER	MK82 LLLGB (1)	BOOSTED MK83 (1) LLLGB
Guidance (2) & Control Group	$ 6,147	$25,014	$25,014
Air Foil Group	2,762	4,305	4,305
SKIPPER MOD	5,260	N/A	N/A
Rocket Motor (3)	5,500	N/A	5,500
TOTAL	$19,669	$29,319	$34,819

NOTES:

(1) LLLGB cost figures are based on FY 83 not-to-exceed figures and are expected to be from 10-20% lower in outyears.

(2) Guidance and control group (LGB) and Computer Control Unit (LLLGB) can be used on either MK82, 83, or 84 bombs.

(3) The rocket motor for both SKIPPER and the BOOSTED MK83 LLLGB will be a modified MK78 MOD SHRIKE rocket motor.

LASER GUIDED BOMB KITS

QUESTION: What are the major operational differences of the SKIPPER and LLLGB kits?

ANSWER:

	SKIPPER	LLLGB
Maximum Range (low level)	(deleted)	(deleted)
Minimum Release Altitude (level attitude)	(deleted)	(deleted)
Seeker field of view angle	(deleted)	(deleted)
Scan Modes	(deleted)	(deleted)
Acquisition Range (Equal Laser Energy)	(deleted)	(deleted)
Glide Ratio	2:1	5:1
Minimum Range	(deleted)	(deleted)
Circular Error Probable (Accuracy)	(deleted)	(deleted)
Guidance	Pursuit	Proportional
Control	Bang-Bang	Adaptive Proportional
Wing Configuration	Fixed	Pop-out

QUESTION: Why does Navy need boosted laser guided bomb kits for the MK83 bomb? Wouldn't LLLBGs on MK82 or MK84 bombs already developed by Air Force perform just as well?

ANSWER: Boosting the MK83 provides for a launch range (d) in a war at sea scenario. A LLLGB would place the delivery aircraft well within the threat envelope. The MK83 is the ideal weapon to boost because of the availability of a proven rocket motor and the length of the assembled weapon is acceptable for shipboard handling. The MK83 is the Navy's weapon of choice because of its effectiveness and storage space requirements.

QUESTION: We understand the Navy has recently initiated a development program for boosted LLLGB. When will this modified SKIPPER be ready for production? What operational improvement will the "modified SKIPPER" provide?

ANSWER: The Boosted MK83 LLLGB is scheduled for production in January 1988 with deliveries in mid FY 1989. These dates depend upon the Air Force LLLGB production decision date. The Boosted MK83 LLLGB is not an improved SKIPPER but a totally new design. It will provide a 60% increase in launch range and a 250%

improvement in the laser seeker field of view/sensitivity over SKIPPER. These improvements will provide for greater flexibility in delivery tactics and decrease the delivery aircraft's exposure to enemy air defense weapons systems.

2.75" ROCKET

QUESTION: Are planned deliveries reflected in the production schedules accurate? If so, why are funds being requested for 38,800 MK66 motors in fiscal year 1984 if they cannot be delivered within the funding delivery period?

ANSWER: The planned deliveries, shown in P21A forms, are considered to be accurate, and closely parallel the service experience in FY 1983 procurement of this item. The procurement leadtime shown in the P20 form seriously understates the real (historical) procurement leadtime and is the cause of the apparent difference between the funding delivery period and the planned delivery schedules.

QUESTION: Can production be increased to accommodate delivery within the funding delivery period? Are there production problems with the motor?

ANSWER: It is not feasible to increase the production delivery rate to complete the deliveries within the funding delivery period which is defined by the P20 procurement leadtime. FY 1983 is the first year of production for the MK66 rocket motor and production deliveries have not yet started. There are no known or anticipated production problems with the motor.

MACHINE GUN AMMUNITION

QUESTION: Since the Navy reduced its FY 1983 and FY 1984 25mm. API cartridge procurement quantities from 354,000 and 675,000 cartridges respectively to 75,000 each year, does it still need $6 million in each year for facilities?

ANSWER: The Navy stimulated industry interest in the 25mm program. A resulting second source contractor spent corporate funds instead of planned government funds for facilitization. This reduced the government's facilities requirement to $1.5M in FY-83 and $.5M in FY-84.

QUESTION: If the answer to question 1 is yes, how does the Navy plan to spend the $6 million in facilities funds included in its 25mm. API FY 1984 budget submission?

ANSWER: N/A

QUESTION: How did the Navy spend the $6 million dollars it received in FY 1983 for 25mm API facilities?

ANSWER: Only $1.5M of the $6.0M has been obligated for production facilities for the 25mm API round. The remaining $4.5M will be utilized for other high priority programs such as the FMU-139 Common Bomb Fuze. The Navy is currently considering submitting a DD-1415 Reprogramming Action to accelerate FMU-139 pro-

duction from FY-84 to FY-83. Such a reprogramming request would be submitted after an Approval for Limited Production (ALP) decision currently scheduled for May 1983.

QUESTION: The Army already has an API cartridge test facility. Since the Navy is going to transition its 25mm API cartridge to the Army on October 1, 1984, does it need a $600,000 test range? If the answer to this question is yes, why can't the Army use the Navy's test range?

ANSWER: The Army does not have an API cartridge test facility. The Army does not build an API round. It is peculiar to the USN. The USN is required to run Lot Acceptance Tests (LAT) and autogun tests for the API round. These tests will be conducted with a GAU-12/V 25mm gun system. The Army does not use this gun. It is peculiar to the AV-8B.

PRACTICE BOMBS

QUESTION: Why is the Navy Requesting funds in fiscal year 1984 for the BDU-20/C and BDU-36 bombs when the production schedules for both show that the bombs cannot be delivered until after their respective fiscal year 1984 funding delivery periods?

ANSWER: Contract lead time on Exhibit P-20 is incorrect. Historical budget and vendor problems have created an actual lead time of approximately 30 months. Revised Material Planning Studies reflect this longer, more accurate lead time. When the funded delivery period is officially redefined using the revised lead time, the exhibits for both BDU-20/C and BDU-36 will specify delivery commencing April 1987 and ending Sept 1987 which is within the revised fiscal year 1984 funded delivery period. Future year submissions will reflect this lead time.

QUESTION: Why are there still undelivered quantities of the BDU-20/C from fiscal years 1978, 1979, and 1981?

ANSWER: BDU-20/C Procurement. Exhibit P-20 form showing outstanding deliveries is an inventory reporting error. All FY-78 and FY-79 BDU-20/C quantities have been delivered. The FY-81 BDU-20/C procurement experienced two problems, one administrative and one production. The FY-81 delivery schedule will commence in June 1983 and end in May 1984 (which is in the funding delivery period using the revised 30 month leadtime). Steps have been taken to enter those items into the mechanized Conventional Ammunition Integrated Management System (CAIMS) to provide more accurate accounting data.

QUESTION: Also, why are there still outstanding deliveries from the fiscal year 1980 BDU-36 programs?

ANSWER: BDU-36 Procurement. The FY-80 buy of BDU-36 is also experiencing production problems (see next paragraph 2(c)). The FY-82 buy is on schedule: 20 units per month will be delivered from May 1984 to Sept. 1984 (within the revised funding delivery period).

QUESTION: Has the Navy experienced production problems with either the BDU-20/C or BDU-36?

ANSWER: BDU-36. FY-80 Procurement of BDU-36 is experiencing a production problem. All parts were placed on contract with small business companies. With the exception of the bomb casing all deliveries were made by early 1982. After repeated vendor delay and one First Article failure causing a production delay, the bomb casing vendor passed First Article and received progress payments with deliveries to commence April 1983. A plant visit determined the vendor cannot meet this delivery schedule. NAVAIR has been tracking the progress and supported the issuance of a show cause letter on 7 April 1983 due to non-performance. The delivery schedule is now uncertain.

BDU-20/C. The FY-81 BDU-20/C procurement experienced two problems: one administrative and one production. Whereas most contracts were awarded within 120 days of receipt of funds, one contract took 270 days because of small business set aside that was overturned by a pre-award survey. The other problem resulted when a vendor unexpectedly went bankrupt. The current BDU-20/C delivery schedule will commence in June 1983 and end in May 1984.

QUESTION: When are undelivered quantities of the BDU-20/C bombs from the fiscal year 1978 and 1979 procurements expected?

ANSWER: Exhibit P-20 form showing outstanding deliveries is an inventory report error. All FY-78 and FY-79 BDU-20/C quantities have been delivered.

MISCELLANEOUS CARTRIDGES AND CARTRIDGE ACTUATED DEVICES

QUESTION: How is the Navy planning to eliminate its large inventory of MK-2 impulse cartridges?

ANSWER: MK-2 cartridges will be used in cartridge applications that cannot use the CCU-44/B unless the breech is modified. Breech modifications to allow the switch to the CCU-44/B are ongoing but several applications will remain that use only MK-2 cartridges after the FY-84 Funding Delivery Period (FDP). NAVAIR is still assessing the extent of the MK-2 unique applications that will remain after the FY-84 FDP and estimates that the annual usage of these applications will be no more than 10,000 units.

QUESTION: Since both items essentially have the same applications why didn't the Navy combine the assets on the CCU-44/B impulse cartridge and the MK-2 impulse cartridge when computing the FY-84 procurement requirement?

ANSWER: In calculating the requirements of CCU-44/B impulse cartridges, the assets for MK-2 impulse cartridges were not shown as expenditures after the FY-83 FDP, since these assets were produced on FY-79 and prior contracts. The age life of any significant quantities of MK-2's still in the system during the FY-84 FDP would be questionable. Also the highest users of MK-2's during this time frame will have been converted for the new CCU-44/B cartridge.

QUESTION: Since the current production schedule indicates that only about 77 percent of the Navy's FY-84 request for JAU-1/B cartridge actuated initiators can be delivered within the funding delivery period, wouldn't it be prudent to adjust the Navy's FY-84 request?

ANSWER: The Navy's FY-84 request for JAU-1/B cartridge actuated initiators is based on projected Fleet consumption/ training allocations, and any adjustment downward would result in a shortage of assets for Fleet use. The planned deliveries, shown in P-21A forms are considered to be accurate, and closely parallel the service experience in the past two years for procurement of the item. The procurement leadtime shown in the P-20 form understates the real/historical procurement leadtime, the three to four months after 1 Oct for obligation authority, and is the cause of the three month difference between the FDP and the planned delivery schedules on the P-21A forms.

QUESTION: What was the inventory position of the FLU-8A/P automated inflation device as of September 30, 1982? Why weren't assets shown on the world wide asset report considered by the Navy when computing its requirements?

ANSWER: The inventory position as of 30 September 1982 for FLU-8A/B inflation devices available for issue was zero. FLU-8A/B devices, upon installation, are expended to end item use. Upon receipt from the Vendor, these devices are forwarded to the squadrons which have had devices installed tne longest. Once FLU-8A/P's are installed in vests, the devices begin their aging process and must be replaced prior to expiration of the installed life. Within the Navy, there are approximately 8,000 life vests which require two FLU-8A/P's per vest. Assets shown in inventory, such as the 2288 under question, would be assets recently delivered from the Vendor which had already been counted as due-in on the P-20. Therefore, the total assets on the P-20 would not be changed nor would the required procurement.

AIRCRAFT ESCAPE ROCKETS

QUESTION: What are the projected consumption rates of the MK 74 rocket motor and MK 75 rocket motor for the fiscal years 1983 through 1986?

ANSWER: The consumption rates for the MK 74 rocket motor for the fiscal years 1983 through 1986 are 101, 80, 33 and 65 units respectively.

The consumption rates for the MK 75 rocket motor for the fiscal years 1983 through 1986 are 92, 99, 58 and 64 units respectively.

The procurement requirements of aircrew escape propulsion systems are not calculated on the basis of "consumption rates" as is the case for other forms of conventional ammunition. Rather, procurements are dictated by the distribution and expiration of installed assets. The quantities, ages and distributions of assets are accurately identified and aircraft groundings are avoided by carefully coordinating the procurement and delivery of rocket motors to coincide with the expiration/removal of expired stock. In this way, spares are maintained as close to zero as practicable and over/under buying is avoided.

QUESTION: If the Navy had based the FY 1984 procurement requirement for the MK 74 and MK 75 rocket motors on 30 Sept 82 data rather than 1 Apr 82 data, would the funding request have been different?

ANSWER: The funding request would have remained the same because the difference between 1 Apr 82 and 30 Sep 82 baseline data matches the expected consumption used in calculating the FY 84 budget.

QUESTION: Why did the Navy have a procurement request in excess of the inventory objective for the MK 74 and MK 75 rocket motors.

ANSWER: Procurement quantities are selected and triggered on the basis of economical order quantities. Aircrew escape propulsion systems are not procured individually. Production and delivery are in the form of lot quantities.

JET ASSISTED TAKE OFF (JATO)

QUESTION: Are the fiscal year 1984 planned deliveries reflected in the production schedules accurate? Why is there a quantity of 506 MK-25s scheduled for delivery outside the fiscal year 1984 funding delivery period?

ANSWER: Based on information provided by the Single Manager for Conventional Ammunition the planned deliveries for "FY-84" are considered accurate at this time. The FY-84 standard leadtime provided by the Single Manager is 18 months after 1 October 1983. This would commence initial delivery of the FY-84 quantities in April 1985. However, latest estimated leadtime provided by the Single Manager indicates a 22 month leadtime for the FY-84 buy with initial delivery starting in August 1985 vice April. Thus, four months worth of the 12 months FY-84 production will slide into the FY-85 standard production period (1 Apr 86 to 1 Apr 87).

QUESTION: Can production of the MK-25 be increased to accomodate delivery of the total fiscal year 1984 request within the funding delivery period? Are there production problems with the MK 25?

ANSWER: Production of the FY-84 procurement probably can be compressed after initial deliveries since the manufacturer will have refined his production processes during FY-82 and FY-83 production. There are no production problems with the MK 25.

GATOR

QUESTION: Has the Navy's GATOR system (CBU-78/B) been approved for limited production? If so, when was this approval granted?

ANSWER: No. The Approval for Limited Production (ALP) is in staffing with final review and anticipated production approval in May 1983.

QUESTION: What is the anticipated delivery schedule for the Navy's fiscal year 1984 procured GATOR bombs?

ANSWER: Delivery of FY-84 USN Gators will begin in July 1985.

QUESTION: The Navy's fiscal year 1983 Congressional budget request for GATOR projects a FY-84 unit cost of $29,386. The Navy's fiscal year 1984 Congressional budget request for GATOR projects FY-84 and FY-85 unit costs of $59,565 and $39,715 respectively. What accounts for the significant increase in projected FY-84 unit costs? Is it reasonable to assume that the FY-85 unit costs will decrease by about $20,000?

ANSWER: The original estimate of $29.4K was made in 1981. The estimate increased to $59.6 as production planning progressed in 1982. The current estimate, drafted in March 1983, is $29.9K in FY-84. The changing unit cost estimates reflect the latest learning experience from the USAF FY-83 LRIP contract. The Navy/Marine procurement objective for GATOR is 6000 units. As a result of these repricing changes, we will buy about 765 units in FY-84 vice the 405 presently indicated.

QUESTION: When does the Navy plan Follow On Test and Evaluation for GATOR?

ANSWER: The FOT&E schedule is not yet definitized. The Navy is considering a plan to do FOT&E concurrent with the USAF FOT&E scheduled in the 1st and 2nd quarters of FY-85. This is the earliest possible date based on the availability of test hardware.

CLOSE IN WEAPON SYSTEM AMMUNITION

QUESTION: The current production schedule indicates only about 60 percent of the Navy's FY 1984 request for 20mm target practice cartridges can be delivered within the funding delivery period. Why should funding be provided for quantities not deliverable within the funding delivery period?

ANSWER: The delivery schedule shown on the January 1983 Production Schedule (DOD Exhibit P-21A) was formulated based on a previous (Sep 1982) submission. The September submission was for a lesser quantity. The lower monthly production rates were transcribed in error. Actual deliveries are anticipated at rates up to approximately 100,000 rounds per month with total deliveries of approximately 588,000 rounds. All deliveries will occur within the contract delivery period.

76MM AMMUNITION

QUESTION: How does the Navy plan to use the newly designed 76mm HE-VT cartridge?

ANSWER: The HE-VT will be used against cold air targets and small surface craft. Half of the present inventory of 76mm HE-IR will eventually be replaced by the HE-VT.

QUESTION: When will the 76mm HE-VT cartridge be approved for service use/approved for limited production?

ANSWER: Approval for service use/approval for limited production is expected by the end of FY-83.

QUESTION: What is the basis for Navy's 76mm HE-VT unit cost

estimate of $578.74? The Army's PP-2 dated January 4, 1983, provides a unit cost estimate of $556.81 ($337.35 and GFM $219.46).

ANSWER: The Army's 4 January 1983 estimate did not account for the MK 38 fuze battery cost. The error was found in time to correct the Navy's estimated cost. No difference of opinion presently exists.

QUESTION: During the developmental testing of the MK 417 fuze, a significant number (7 of 25) of the fuzes functioned prematurely when tested at +20°F. How will this problem be corrected?

ANSWER: The fuze AGC capacitor was identified as the cause of the problem. It will be changed and tested prior to production.

QUESTION: When does the Navy plan to award a production contract for MK 417 fuzes? What is the anticipated delivery schedule of MK 417 fuzes?

ANSWER: A production contract for the MK 417 fuzes will be awarded not later than March 1984. The anticipated deliveries are 4700/February 1985, 4000/March 1985, 4000/April 1985, 4000/May 1985 and 4000/June 1985.

PYROTECHNICS AND DEMOLITION

QUESTION: Since the current production schedule indicates only about half of the FY 1984 request for Signal Smoke and Illumination Red, MK-124, can be delivered within the funding delivery period, wouldn't it be prudent to adjust the services' FY 1984 request?

ANASWER: Single manager's planned production schedule used by the auditors reflected the present production rate of the MK13 signal contract and had not taken into consideration the larger FY84 quantity. Subsequent to the funding, single manager has issued a revised planned production schedule reflecting a 25,000 per month production rate for the MK124 signal. This rate reflects a rate sufficient for both Navy and Air Force requirements and not the maximum rate. It should be noted that GAO has informally notified the Navy that based on new data, they are deleting this finding.

QUESTION: What are the projected consumption allowance of Signal Smoke and Illumination Red, MK-124 for the next 5 years?

ANSWER: While the FY84 program reflects filling initial allowances for this new signal, the annual approved consumption rate is 48,165 a year for the next 5 years.

PROJECTILE, 155mm ADAM AND 155mm RAAMS

QUESTION: In response to last year's questions the Marine Corps said the Army would eliminate the prior year backlog for these items by increasing production at the load, assemble and pack (LAP) facility. Was the Army able to eliminate the backlog? Please provide a current delivery schedule for funded Marine Corps Programs.

ANSWER: The Army was able to eliminate the backlog for prior year procurement. The delivery schedule for the Marine Corps FY 80 programs is as follows:

	FY80	FY81	FY82	FY83
ADAM M692	Feb83	No Buy	Apr84	Sep84
ADAM M731	Apr83	No Buy	Sep83	Jan84
RAAMS M718	Dec82	Jun83	Oct83	Sep84
RAAMS M741	Dec82	No Buy	Apr84	Sep84

PROJECTILE, 155mm ADAM AND 155mm RAAMS

QUESTION: Last year the Army declined to increase production from a 1-8-5 to a 2-8-5 shift basis because a multiple shift operation was believed to be too costly and unnecessary. What impact will multishift production of the FY 1984 program have on the unit price charged the Marine Corps?

ANSWER: ARRCOM, the Single Manager for Conventional Ammunition (SMCA) states there would be no impact on FY 1984 costs in the event SMCA went to a multishift production for the projectiles, 155mm ADAM and RAAMS. SMCA plans to go to a 2-8-5 shift at Iowa Ammunition Assembly Plant for the RAAMS.

QUESTION: Comment on the reasonableness of the Army's scheduled production of the FY 1984 program.

ANSWER: A more realistic funded delivery period for the projectile, 155mm ADAM and RAAMS is 18 months instead of 12 months as depicted on the production schedule. Based on the latest current delivery schedule for funded Marine Corps programs, the Army's production schedule for FY 1984 is reasonable.

8 INCH PROJECTILE, HIGH EXPLOSIVE, M509A1

QUESTION: Despite a problem with drill and pin equipment and no production history the Army maintains it can produce this item at a maximum production rate and deliver the requested quantities within the funded delivery period. Please comment on the Army's ability to meet its production objectives for this projectile. What is the Army's past record concerning delivery of this projectile within the Marine Corps funded delivery period?

ANSWER: ARRCOM the Single Manager for Conventional Ammunition (SMCA), has not started production due to drilling, lining problems and pin equipment problems. Initial production is now planned to begin in May 1983. The combined Army and Marine Corps programs cannot be delivered within the FY 1982 Funded Delivery Period, however, the FY 1983 program can be completed within the Funded Delivery Period. The current delivery schedule for the Marine Corps' FY 1982 program is January 1984 thru August 1984. The first time buy for the Marine Corps of 8-inch ICM projectile was FY 1978. Due to technical difficulties the Army was forced to terminate both the Army and Marine Corps programs.

BUDGET LINES 1 AND 2: A-6E

QUESTION: For FY 1982, 1983 and 1984 what specifically does the non-recurring funding provide in the way of services and materials?
ANSWER: The non-recurring in FY1982 was utilized to validate the production data package for the HARM Command Launch Computer (CLC) for competitive procurement purposes. The non-recurring in FY 1983/1984 provides for the industrial engineering, tooling, production, facility mods, and production testing mods for the ALR-67 and the avionics integration set (AIS) to accommodate requirements for HARM, Maverick, Improved HARPOON and other future weapons.

QUESTION: What level of production is Grumman currently facilitized to?
ANSWER: Grumman is facilitized to produce up to 72 A-6E and EA-6B aircraft per year. Both aircraft use the same production line. Since this line is also used for the A-6 and EA-6 modification program, this number must be reduced by the number of modification aircraft in flow in any given year.

QUESTION: What were the actual negotiated FY 1983 unit costs for the airframe, engines, engine accessories, electronics, armament, and other GFE items?
ANSWER: The airframe was negotiated at $12.397M unit cost. The engines are still being negotiated and expect to settle at $2.626M unit cost. The engine accessories, electronics, armament and other GFE lines include over 150 items. Final negotiated prices for all of these items will not be completed until mid FY 1984.

QUESTION: What services and hardware will the $70.2 million for support costs buy? Justify the 20 percent increase over the FY 1983 program level.
ANSWER: The $70.2 million provides for the continuing support of the A-6E weapon system. Included in, but not limited to this is the continuing effort to establish an inhouse depot for the DRS; the setting up of the 14th airwing; the procurement of a new set of support equipment to replace the equipment that was fielded in the late 60's and is now unsupportable; a complete support package for the ALR-67 installation; update and revision of publications including detailed maintenance manuals, NATOPs, and technical manuals; laboratory equipment to maintain and support the flight software; and engineering/ logistic analysis and Navy laboratory support to maintain the aircraft weapon system viable in the fleet.

The support costs are priced to cover the requirements for each individual year and do not necessarily relate to other years in the manner that aircraft equipment items do.

The major area causing the FY 84 support costs to be higher than those required in FY 83 is the procurement of new support equipment for the 14th airwing for $15.2 million. Other new initiatives include replacement support equipment; establishment of an inhouse DRS depot; and the engineering and logistic efforts necessary to field and support major changes to the weapon system, such as the ALR-67 system.

AIRCRAFT PROCUREMENT, NAVY AND MARINE CORPS

BUDGET LINES 3 AND 4: EA-6B

QUESTION: How many EA-6B's is Grumman currently facilitized to produce annually?
ANSWER: Grumman is currently facilitized to produce 24 EA-6B aircraft annually.

QUESTION: Explain what the FY 1983 and FY 1984 non-recurring funding is budgeted to provide in the way of hardware and services?
ANSWER: The non-recurring funding for FY 1983 and FY 1984 provides engineering services to incorporate Engineering Change Proposals (ECPs) into the EA-6B. For 1983 these include: wing fold fairing (safety), pitot static water separator (producibility), aft canopy turtleback corrosion (reliability and maintainability), ARC-182, ARC-190/KY-75 communication (producibility/capability) and computer interface unit/encoder (reliability/maintainability/producibility). For 1984 these include strobe lights (safety), store stations A and B (capability), digital recorder (producibility), microwave refractometer (capability), aft fire detection system (safety) and continuing work on the computer interface unit/encoder.

QUESTION: Provide justification for the nearly 90 percent increase in program support costs with particular emphasis on the increases in airframe and avionics peculiar ground support equipment (PGSE).
ANSWER: The increase in program support is required for the introduction of the new EA-6B configuration (ICAP II/ASN-130/-ASN-123) and the commissioning of two new Navy squadrons (#10 and #11). A breakdown of the support cost follows:

	FY-84
Airframe/Engine/Avionics PGSE	$ 146.3M
Training Equipment	12.7M
Pubs and Tech Data	25.0M
ILS/System Integration/Tac Software	10.2M
	$ 194.2M

Airframe PGSE increased by $20.2M. The increased costs are broken down as follows:

ICAP II Maintenance Diagnostic	$ 6.7M
Naval Air Rework Facility Computer-Operated Aircraft Wiring Tester	1.6M
ALM 107/108/109 Test Set Update	5.2M
CIU/Encoder Support Equipment	3.4M
VAQ-140 (SQD 11) Organizational Support	3.3M
	$ 20.2M

Avionics PGSE increased by $55.5M broken down as follows:

ASN-130 Inertial System Support	$ 4.5M
ASN-123 Display Group Support	7.0M

VAQ-139/VAQ-140 Intermediate Level-Support Equipment (2 Van Sets)	52.0M
ICAP II Mission Planner	- 8.0M
	$ 55.5M

Procurement of the aforementioned support equipment is essential to the successful fleet introduction in FY 84 of the latest EA-6B configuration (ICAP II/ASN-130/ASN-123) and its subsequent initial deployment in FY-85. The new I-level support van sets for VAQ-139 (SQD 10) and VAQ-140 (SQD 11) continue the highly successful and cost effective acquisition strategy of procuring support equipment based on the number of EA-6B squadrons vice a set for each carrier which would lie dormant when an EA-6B squadron was not embarked. Presently, nine Navy van sets support the 9 EA-6B squadrons and are crossdecked from carrier to carrier with squadron movements. The major item in training equipment is a $5.2M increase to procure the ICAP II TJS Maintenance Trainer and other avionics systems changes (i.e., ASN-123/ASN-130). The $9.1M increase in Pubs and Tech Data is needed to provide the new maintenance publications for ICAP II, the ASN-123, the ASN-130 and associated support equipment. The increase of $2.7M for ILS/Sys integration and tactical software supports the initial ILS and development of software support for ICAP II, ASN-123, and the ASN-130.

QUESTION: What were the recurring airframe unit costs established in the December 1983 contracts?
ANSWER: The FY-83 and FY-84 production contracts are expected to be definitized concurrently in December 1983. The anticipated unit airframe cost is $16.448M ($98.690 for 6) for FY-83 and $17.485M ($104.910M for 6) for FY-84.

AV-8B

QUESTION: As the AV-8B enters service, what disposition is planned for the A-6s that will be replaced? What is the cost by year and appropriation of this transition and disposition plan?
ANSWER: The AV-8B is not being introduced as a replacement for the A-6. The AV-8B is being introduced as the replacement for the A-4M in the modernization of Marine Corps light attack forces. As the AV-8B is introduced into the Fleet Marine Force, the A-4M is being transferred to the Marine Corps' Reserve Air Wing (4th MAW), where it replaces the aging A-4E/F aircraft. There are no significant costs associated with this modernization of Reserve forces.

BUDGET LINE 5 AND 6 - AV-8B

Question: What were the recurring unit costs established in the definitized February 1983 contract for the airframe, engine, and angle rate bombing system?
Answer: Airframe: The negotiated amount is $19.3M. This excludes the cost of gun PAKS and leading edge root extension (LERX) which are estimated to add $1.0M to the total unit cost making it $20.3M. This amount represents the negotiated value between MCAIR and NAVAIR. The contract has not been definitized.
Engine: The contract unit cost is $2.67M. ARBS: The ARBS procurement for FY-83 is not negotiated yet.

Question: Justify the 43 per cent increase in program support costs to include the 150 per cent increase in avionics PGSE and 50 per cent increase in airframe PGSE.

Answer: The budget for airframe and avionics PGSE has increased from FY-83 to FY-84 because of introduction of aircraft to the inventory and the associated increase of sites/squadrons supported. In addition we are beginning to procure I-level and depot level support equipment for an increasing quantity of aircraft at Cherry Point. The required year buy of SE is based on aircraft introduction for organizational, intermediate and depot level sites for the total program lead time away from site outfitting dates.

Question: As the AV-8B enters service, what disposition is planned for the A6s that will be replaced? What is the cost by year and appropriation of this transition and disposition plan?

Answer: Current acquisition plans procure AV-8Bs only as replacements for USMC A-4Ms and AV-8A/Cs.

Question: Last year's budget submission projected $83.6 million advance funding for 48 aircraft in FY-1985. Your current request now seeks $98.4 million for the same number of aircraft in FY-1985. Why has this increased? What additional is being funded for this increase of $14.8 million?

Answer: No specific additional equipment accounts for the increase. On a unit cost basis, advance procurement funding for engines and government-furnished equipment has decreased. Advance procurement funding for the airframe has increased by about 9% per aircraft. This is partially due to escalation and partially due to a more realistic estimate of the production and installation lead time.

BUDGET LINES 7 AND 8: F/A-18

QUESTION: Why has your advance procurement request increased 18 percent from what was projected last year while procurement quantities for 1985 have decreased?
ANSWER: The change in procurement plans from an annual procurement of F404 engines to a multiyear procurement increased the advance procurement requirement.

QUESTION: What would be the impact of a 20 percent reduction in proposed advanced procurement funding for FY 1985?
ANSWER: Implementation of engine multiyear procurement would no longer be feasible.

QUESTION: Your FY 1983 program support costs are about a third lower than they were in FY 1982. What problems are being encountered or expected with this level of funding in FY 1983?
ANSWER: The lower level of support funding of $363.3 million represents an initial allocation of FY 1983 funds appropriated. $524.3 million was originally requested for support. A $161 million reduction causes a severe hardship in meeting support requirements. In fact, the limitation was so severe that it has been necessary to add $40 million to the support program to reinstate depot level peculiar ground support equipment procurements which would have caused a delay in the depot level repair program. This was necessary because review subsequent to the initial allocation revealed that it was not cost

effective to delay the depot program due to associated operations and maintenance and spares cost increases.

QUESTION: What would be the impact of sustained program support funding at or about the FY 1983 level?
ANSWER: Reducing the FY 1984 support program to the FY 1983 level, approximately a $200 million reduction, would preclude procuring adequate support equipment to meet operational, intermediate and depot level site outfitting requirements. It would severely cripple the establishment of the depot level repair capability which would impact readiness and increase operation and maintenance costs and spare part requirements.

QUESTION: Has the FY 1983 airframe contract been definitized yet? If so, what was the negotiated recurring unit cost for the airframe? If not, when do you expect the definitization to be complete?
ANSWER: The FY 1983 airframe contract has not been definitized. Definitization is expected to be completed during the period October-November 1983. The FY84 airframe contract is planned to be negotiated at the same time.

QUESTION: In light of the slower procurement rate in the outyears, what would be the impact of a 30% reduction in proposed funding levels for initial spares to match the level proposed in the 84 column of your 83 budget submission?
ANSWER: The slower procurement rate in the outyears does not affect the FY 1984 initial spares requirements on the F/A-18. The FY 1984 spares support is required for the aircraft being delivered in the mid CY85 to mid CY86 time periods. In this time period, initial spares support is required for squadrons deploying aboard a carrier as well as squadron buildups at NAS Lemoore, NAS Cecil Field and MCAS Beaufort. The current FY 1984 initial spares funding recognizes price growth, and prior year (FY 1982/FY 1983) shortfalls that were not visible one year ago. A 30% reduction in proposed funding would result in a concomitant lack of support for the fleet operational sites mentioned above and an overall degradation of support and readiness for this first line aircraft.

BUDGET LINES 9 and 10: F-14A

QUESTION: What maximum production rate is Grumman currently capable of?
ANSWER: There is sufficient tooling and plant capacity at Grumman to produce 96 F-14 aircraft per year. Thirty-six F-14 aircraft per year, however, is a more practical economic rate of production.

QUESTION: Detail what the FY 1983 and FY 1984 non-recurring funding will provide by service and hardware.
ANSWER:

FY 1983 -	$53.5M	
	$40.0M	Tooling and test equipment required to manufacture the Programmable Signal Processor modification to the AWG-9 radar as well as manufacture of six initial sets of hardware

$ 7.5M For the procurement of 120 drop tanks. Drop tanks were deleted from the airframe contract in FY 1976 and have not been procured since, causing a fleet shortfall of 240 tanks.

$ 6.0M For the procurement of thirty (30) sets of ancillary armament equipment (weapons rails, Phoenix launcher, etc.). The change in aircraft missile load from 2-2-2 (Phoenix, Sparrow, and Sidewinder) to 4-4-2 and the Indian Ocean Crisis caused a shortfall of approximately 200 sets. FY 82 and prior years procured 146 leaving a deficit of fifty-four (54).

FY 1984 - $26.3M

$ 5.115M To procure the remaining twenty-four (24) sets of ancillary armament.

$ 6.5M To incorporate the AIM-54C sealed missile (Dry Aircraft) into the F-14 aircraft. The AIM-54C Liquid Cooling Loop will be deleted including all lines, hoses, valves, fittings, support brackets, wiring, reservoirs, pumps and controls. Deleting the AIM-54 liquid cooling loop will reduce airframe weight and reduce maintenance problems presently occurring in the cooling loops in the aircraft. This funding will procure the detailed engineering design required for this change as well as production tooling and test equipment.

$ 7,751 GAC and HAC Factory Tooling - The F-14 Program has been in production for over ten (10) years. The recent increase in planned FY-14 procurements from 509 to 845 aircraft necessitates an additional investment in production tooling. Due to wear and obsolescence of some pieces of tooling, replacement is required.

$ 7,114 This requirement is for tooling, test equipment, and engineering development at Grumman to incorporate PSP in the aircraft.

QUESTION: Justify the 60 percent increase in airframe PGSE requested in FY 1984. Why is this increase necessary?
ANSWER: The $18.6 million or 60% increase in airframe PGSE funding from FY 1983 to FY 1984 is caused primarily by:

a. The need to procure tooling and test equipment with lead times of greater than 12 months for installation on the 13th F-14 configured carrier. This equipment will establish an intermediate level maintenance capability on that carrier and is required in lated FY 1985 for installation during the final stages of the ship construction.

b. The requirement to establish a second aircraft depot rework facility in San Diego to satisfy the growing rework requirement as the active inventory of F-14 aircraft increases.

The funding requested in the airframe PGSE line will procure depot level tooling.

c. The requirement to procure additional intermediate level tooling and support equipment to be used ashore at NAS OCEANA and MIRAMAR to support the increasing levels of F-14 aircraft at those activities. An example of material to be procured would be additional aircraft tow bars needed to handle the new squadrons of planes being formed up now and for the next three years.

d. The requirement to procure new airframe tooling and test equipment to be used at the squadron level for maintenance of the Programmable Signal Processor.

QUESTION: Why has the FY 1984 funding for initial spares been increased 25 percent when airframe procurement has decreased 25 percent in FY 1984 and FY 1985?
ANSWER: The following recapitulation displays the dollar value of requirement changes between the FY-83 and FY-84 Congressional submits which resulted in additional funds provided:

+12.2M	Contractor Parts
+ 7.7M	PSE
- 3.2M	Engines
- .3M	ASO Navy Parts
+16.4M	Total Increase

The requirements for initial spares include spare engines and spares and repair parts for new equipments that are not yet stabilized in configuration sufficiently for full supply system support.

FY-1984 spares requirements for new avionics systems such as the AWG-9 Programmable Signal Processor, the Television Camera Set, and the ARC-182 radio caused the increase in initial spares required.

QUESTION: What would be the impact of a 25 percent reduction in FY 1984 in initial spares funding?
ANSWER: A 25% reduction in the FY-84 funding would have a detrimental impact on readiness. The result would be a significant reduction in the quantity of spares needed to support configuration changes and procurement of spare engines.

QUESTION: With reference to pages 6 and 7 of the F-14 pages in the FY 1984 Congressional data sheets, for each of the six configuration changes identified in paragraph 2E, identify the tooling and production facilitation costs for each and identify the budget year in which this funding will be requested.
ANSWER: a. As indicated on page six, target identification software (TIS) is currently under development with R&D funding. Initial improvements will be available during FY 1984. Since these changes are not related to hardware modifications but are simply changes to the tactical software tape utilized in operational aircraft, there is no impact on production or requirement for procurement funding. The FY 1984 budget contains no funding for TIS.

b. The approved FY 1983 budget contains $21.4 million of non-recurring funds which will be utilized to procure production tooling for the Programmable Signal Processor (PSP) at Hughes Aircraft, the manufacturer of the AWG-9 weapons control system.

The FY 1984 budget requests an additional $7.1 million for production line tooling and test equipment at Grumman required to install a PSP configured AWG-9 after delivery from Hughes aircraft.

c. The AIM 54C improved PHOENIX missile is currently in OPEVAL and concurrent low rate of production. The missile change, by itself, does not create additional tooling and production facilitation costs for the F-14 aircraft. The fact that this improved missile does not require liquid cooling from the aircraft, as did the AIM 54A, means that the aircraft cooling lines, pumps, and controls can be removed from future production F-14's to achieve weight, maintenance time, and cost reductions. The FY 1984 budget requests non-reucrring funds of $6.5 million for tooling design and modification to modify the F-14 to a "dry" configuration.

d. In regards to F-14 defensive electronic countermeasures (DECM), the ALQ-126B was incorporated into the FY 1982 F-14 production lot with no impact on tooling or facilities. Integration of ASPJ, at the time of the Congressional budget submission, was planned for FY 1987. the FY 1985 estimate contains $3.2 million for tooling to incorporate ASPJ. The Navy is currently reviewing the timing of ASPJ incorporation.

e. The configuration modification to incorporate a Television Camera Set in the F-14 was completed with the FY 1982 program.

f. The real time gunsight evaluation addressed on page seven was conducted to improve training and instructions in the use of the gunsight already in the F-14. Any changes judged to be required as a result of the evaluation will be software only with no impact on tooling or test equipment.

QUESTION: The December SAR indicates a high level Navy review of all proposed F-14 configuration changes. This review was scheduled for March, 1983. For each of the six proposed configuration changes, which ones were approved for integration into the production line, what were the dates of production phase in, which ones were denied, which ones require further review?
ANSWER: The configuration review addressed in the December SAR is not related directly to the changes discussed in pages six and seven of the F-14 Congressional data sheet. The configuration review addressed FY 1983 changes only while the six changes outlined in the budget address significant mission capability changes planned or already incorporated in the aircraft.

The Navy review board looked at a number of proposed specification changes to the aircraft related to performance, safety-of-flight, reliability and maintainability as well as changes to introduce additional vendor competition. This is an ongoing process throughout the year which addresses all major weapon systems, not just the F-14.

While the board approved only safety and competition changes for the F-14 in FY 1983, engineering proposals for FY 1984 and FY 1985 aircraft are in the review process for final approval at this time.

QUESTION: When will the FY 1983 tooling and logistics support contract in support of the changes approved for production be signed?

ANSWER: There is no one contract for tooling and logistic support for FY 1983 changes. Tooling requirements are generally contracted with the major hardware contract but items of support involve more than a hundred contracts or priced orders against an existing contract. For example, the seven minor configuration changes related to safety-of-flight and competitive procurement that were approved for FY 1983 were contracted as part of the basic airframe contract in January 1983. The support aspects of these changes are minimal but will be contracted as priced order modifications to the basic airframe contracts.

QUESTION: Was there a FY 1982 tooling and logistics support contract? If so, when was it signed and how much was it for?
ANSWER: In FY 1982, $1.9 million was spend for tooling as part of the basic airframe contract signed in January 1982 and $3.1 million was spent in June 1982 via a modification to the contract. Logistic support requirements have been and are being procured via more than one hundred individual contracts or priced orders against existing contracts. As of the end of March 1983, $117.0 million has been contracted for logistic support.

BUDGET LINES 7 AND 8: F/A-18

QUESTION: Provide a copy of the Secretary of Defense Decision Memorandum associated with the DSARC III review.
ANSWER: A copy of the F/A-18 Program Review Decision Memorandum dated 17 March 1983 is provided.

QUESTION: What is the current status of the Spanish FMS case? Is it now firm? What is the current projected delivery schedule by fiscal year quarter for the 1984 FMS aircraft?
ANSWER: In July 1982 Spain announced the selection of the F/A-18 (EF-18) as the aircraft to modernize its Air Force. Current plans call for the procurement of 84 aircraft (72 single seat, 12 two seat).

A Letter of Intent with limited funding was accepted by Spain on 23 December 1982. It stipulates that the Letter of Offer and Acceptance (LOA) would be signed/accepted prior to 31 May 1983.

Program planning has started under the Letter of Intent. The program is not considered firm until the LOA is accepted.

PROJECTED DELIVERY SCHEDULE
BY FISCAL YEAR FOR THE 1984 FMS AIRCRAFT

	FY 1986			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Spanish EF-18A	0	0	0	1
Spanish EF-18B	0	3	3	2

THE SECRETARY OF DEFENSE

WASHINGTON, THE DISTRICT OF COLUMBIA

17 MAR 1983

MEMORANDUM FOR THE SECRETARY OF THE NAVY

SUBJECT: F/A-18 Program Review Decision Memorandum

As a result of the December 8, 1982, F/A-18 DSARC Review and the data presented at the previous reviews in 1980 and 1981, production of the multimission F/A-18 Strike-Fighter is authorized to fill light attack aircraft inventory requirements as well as the previously approved fighter aircraft inventory. Although the DSARC reviews indicated that the F/A-18 performance is adequate to meet operational requirements as a multimission strike fighter, some corrective actions, such as fuel capacity enhancement, will still be necessary to improve its aircraft carrier suitability and performance in the attack interdiction role.

During the DSARC review, several OPEVAL discrepancies were noted. For the most part, these discrepancies appear correctable, and actions are underway by the Project Office to incorporate the necessary fixes. While it has always been understood that the F/A-18 would have significantly less range and endurance than the A-7, there remains concern about the effect of these reductions on the overall warfighting capability of the aircraft carrier airwing. On the other hand, the F/A-18 has many capabilities beyond those of the A-7 that could more than compensate for these reductions.

In view of this concern, the Navy should review the role of Naval Aviation to determine the best selection of aircraft resources to conduct combat operations over its broad mission spectrum, including power projection, sea lane control, fleet air defense, air superiority, close air support and battlefield interdiction. The rationale that establishes the resource allocation among these mission requirements should also be reexamined. The F/A-18, with its unique swing-role features, should be evaluated for each combat role and compared with the alternative specialized aircraft. A recommendation should be provided that shows how to best integrate the F/A-18 into the force structure and to what degree it will be employed in each combat role. Based on the results of this broad Naval Aviation review and the operational experience gained with the F/A-18, the total inventory requirement should be reexamined and adjusted as appropriate. The results of this review and tentative procurement plan reflecting these considerations should be presented to me with the Navy's POM 85-89 in early May 1983.

Additionally, further operational testing and evaluation is required to ensure that the F/A-18 aircraft carrier launch and recovery limitations noted in the OPEVAL have been satisfactorily corrected in production aircraft. The results of this additional OPEVAL testing and design fixes should be presented to the DSARC principals in a program review in approximately 18 months.

Adequate support of a new weapon system is vital if it is to reach its full potential. Development of Automatic Test Equipment and the Test Program Set (ATE/TPS), Built-in-Test and reliability improvements, and depot level repair capabilities, as well as procurement of adequate spares, will require a carefully managed program. Please review all areas of support for the program and submit a plan within 60 days that ensures adequate funding for development, to include an independent follow-on test and evaluation, and procurement. In addition, numerous F/A-18 capabilities

remain to be tested in FOT&E. Special attention must be focused on timely development and operational qualification of an EW suite, HARM integration, and nuclear weapons capability. Schedule and resources for incorporation of Harpoon, Walleye II, IR Maverick, flares, chemical weapons, and mining capabilities should be carefully monitored. A detailed test plan, including ATE performance criteria, should be submitted to the Director, Defense Test and Evaluation within 90 days.

Multiyear procurement of the F/A-18 and its F404 engine have the potential to generate substantial cost savings. Thus, multiyear procurement of the engine is approved commencing in fiscal year 1984 and for the airframe when deemed fiscally advantageous.

Development and procurement of the Forward Looking Infrared/Laser Spot Tracker (FLIR/LST) pods, to enhance night/marginal weather capabilities, should be continued. Please provide a detailed milestone plan for development and procurement of these items within 60 days.

Paul Thayer

Paul Thayer
Deputy Secretary of Defense

BUDGET LINES 7 AND 8: F/A-18

QUESTION: Will the Martin Baker Aircraft Company ejection seat be permitted to compete in the forthcoming F-18 ejection seat competition?

ANSWER: In response to the request of the chairman of the Senate Committee on Armed Services, Martin Baker (U.K.) will be invited to submit a proposal. However, under the Public Law they will be ineligible to receive the contract award unless Martin Baker becomes a licensed U.S. manufacturer.

QUESTION: Is the latest version of the Martin Baker seat which is currently being installed in production F-18s viewed by the Navy as a completely safe and satisfactory ejection seat? If so, can ejection seats in early production aircraft be modified to the current configuration?

ANSWER: The current Martin Baker ejection seat is considered to be a safe seat, as is confirmed by the survival of all four pilots who have ejected to date. The physiological loads imposed on the pilot are higher than desired under certain environmental conditions. The Navy will install in the aircraft procured with FY 1983 funding a different aircrew parachute and make other minor modifications to the drogue parachute and pilot's backrest. These modifications will be retrofit into existing F/A-18 aircraft at minimal cost.

QUESTION: If additional non-recurring expenditures are required to facilitize a new manufacturer as a result of the F-18 ejection seat competition, will the Navy reprogram those funds from within available funds?

ANSWER: The Navy plan, submitted in response to the Public Law, provided that the Navy would, upon evaluation of received proposals, advise the Congress of the estimated total cost to the government to proceed. If sufficient funds for this purpose are appropriated, the Navy would award a contract and commence development and test.

QUESTION: Provide a P-21A production schedule exhibit which shows both U.S. and FMS deliveries by country for the FY 1983, 1984, and 1985 funded delivery periods.

ANSWER: A P-21A production schedule exhibit showing deliveries to the U.S., Spain, and Australia is provided:

Appropriation: AIRCRAFT PROCUREMENT, NAVY

PRODUCTION SCHEDULE

DOD EXHIBIT P-21A

DATE: JANUARY 1983

Budget Activity: COMBAT AIRCRAFT

P-1 ITEM NOMENCLATURE: F-18A/TF-18A

BUREAU NO.: 41CA

COST CODE	ITEM/SUB-ITEM/CODE NO.	QTY	S E D V	PROG QTY	ACCEP PRIOR TO 1 OCT	REM ACCEPT DUE AS OF 1 OCT	FISCAL YEAR 1985 / CALENDAR YEAR 1985												FISCAL YEAR 1986 / CALENDAR YEAR 1986												FISCAL YEAR 1987 / CALENDAR YEAR 1987												
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	F-18A																																									
	FY-83		N	79	0	79	5	5	4	6	6	6	7	8	9	9	8	9																								
	FY-84		N	78	0	78													7	6	5	6	6	5	6	7	7	8	7	8												
	FY-85		N	91	0	91																									6	7	7	7	8	8	9	9	9	8	8	8
	TF-18A																																									
	FY-83		N	5	0	5		1	1	1	1	1																														
	FY-84		N	6	0	6														1	1	1	1	1	1																
	FY-85		N	1	0	1																									1											
	EF-18A (Spain)		F																																						
	FY-84		F	2	0	2																							1		1										
	FY-85		F	9	0	9																1	1	1	1	1	1	1			1										
	FA-18 (Aust)																																								
	FY-85		A	4	0	4																									1	1	2								

MANUFACTURER'S NAME & LOCATION	PREVIOUS TWO BUYS: UNIT COST	QTY	TOOLING	REACHED ON
McDonnell Douglas Corp St Louis, Missouri 63166				

PROCUREMENT LEAD TIME	A. MFG LEAD TIME AFTER 1 OCT	TOOL PLANNING TIME	MATERIAL AFTER 1 OCT
INITIAL			
REORDER			

REMARKS

BUDGET LINE 11/12 - CH-53E AIRCRAFT

QUESTION: What has caused the flyaway unit cost to increase 14 percent from FY 1983 to FY 1984? Specifically explain the projected 22 percent increase in airframe unit costs as reflected in your P-5 exhibit.

ANSWER: The projected increase in unit flyaway costs is attributable to the effects of the deceleration of our production rates for the FY 1982 and FY 1983 lots of aircraft. The FY 1982 and FY 1983 production buys were negotiated concurrently, had a common material release and were produced at a rate of 1.7 aircraft per month. The net effect of these actions resulted in airframe unit prices significantly lower than can be sustained under reduced production rates (.9 aircraft per month) for the FY 1984 production buy and beyond. The following table summarizes the FY 1983 to FY 1984 increases:

FY 1983 Unit Flyaway (recurring only)	$14.0M	
Airframe material price increases due to loss of economic ordering quantities (25 shipsets vs 11)	+0.9M	
Deferred material escalation	+0.3M	
Production rate inefficiencies and expanded period of performance	+0.2M	
Production rate decreases for engines	+0.2M	
	Subtotal	+1.6M
Escalation	+0.9M	
Planned configuration changes	+0.6M	
	Subtotal	+1.5M
FY 1984 Unit Flyaway (less non-recurring)		$17.1M

The impact of the loss of economic ordering quantities for airframe material and the deferral of escalation because of a common material release for the FY 1982 and FY 1983 production buys is very significant because material costs account for approximately 75 percent of the airframe unit cost.

QUESTION: What was the negotiated fixed recurring costs for the FY 1983 airframe buy?

ANSWER: The FY 1983 airframe contract, negotiated concurrently with the FY 1982 buy, was for $ 118.0 million. The FY 1983 column of the FY 1984 President's Budget reflects an additional $1.8 million for planned configuration changes.

QUESTION: With respect to engine and avionics program support equipment, explain what activities are planned for FY 1984 that are not programmed for FY 1983 and FY 1985 that justifies such large increases in those two budget elements ?

ANSWER:	FY 83	FY 84	FY 85
Engine PGSE	250,000	1,659,000	358,000
Avionics PGSE	785,000	1,954,000	290,000

Peculiar Ground Support Equipment requirements are a function of the number of site activations and level of support. Organizational (O) and Intermediate (I) site requirements are planned to meet a minimum 2 year leadtime. Specific requirements differ between sites depending on the mix of aircraft located at a given site and the consequent degree of common H-53 support equipment available. In the funding profile reflected above, funds are budgeted as follows:

FY 83 - 1 "O" level site; 1 "I" level site

FY 84 - 2 "O" level sites; 2 "I" level sites; special support for Navy Vertical on Board Delivery program

FY 85 - 2 "O" level sites

QUESTION: Why is advanced procurement funding now required for the CH-53E engines?
ANSWER: Advanced procurement funding has always been a requirement for the T64-416 engine. In the past insufficient advance procurement funds were available to meet this requirement.

QUESTION: Explain why engine unit costs have increased by 27 percent concurrent with the adoption of advanced funding for these engines?
ANSWER: The CH-53E is presently the single user of the GE T64-416 engine and our very low annual aircraft production rate (11 per year) means that our total production requirement, including spares , is for less than 5 engines a month. This rate is far below the most efficient production quantities of 12+ engines per month. No relief in this situation is foreseen until the JVX begins production. In October 1981, the estimated FY 1982 engine price increased from $579,000 to an estimated $1,000,000 due to the small quantities and a resultant break in the production line. In order to minimize the projected cost increase, the FY 1982 and FY 1983 engine requirements were negotiated as a block buy of 79 engines. Material costs for FY 1982 and FY 1983 reflected FY 1982 rates, thereby avoiding material escalation costs for FY 1983. Additional savings were also achieved through more economic ordering quantities. The FY 1984 engine buy, however, will be for a quantity of only 46 (including spares). The FY 1984 unit price reflects deferred escalation costs as well as the effect of a reduced production rate and is therefore significantly higher than the FY 1982/1983 unit prices of $697,500 and $718,389 respectively. The factors influencing the increase in engine prices are independent of the availability of advanced procurement funding.

AH-1T PROCUREMENT

QUESTION: Justification and briefing materials provided to the Committee indicate the primary role of the AH-1T is armed escort for the CH-46 helicopter. However, the CH-46 is scheduled to be phased out of the inventory in the early 1990s and replaced by the JVX. With the advent of the JVX, longer stand off

distances will be employed for ship-to-shore movement in conjunction with the increased air speeds of the JVX. The AH-1T cannot operate over those extended ranges and at the higher air speeds. How does the Marine Corps propose to provide armed escort for the JVX?

ANSWER: Marine AH-1T's are assigned eight separate mission tasks. The most important of these are armed escort, close in fire support, and anti-armor. With its significantly improved range, airspeed and maneuverability, the JVX will be compatible with fixed wing aircraft for armed escort. This will enable our limited and heavily committed attack helicopter assets to be more available for anti-armor and close in fire support roles.

QUESTION: Does the Marine Corps have a plan for a high low mix of armed helicopters for the 1990s compatible with the introduction of the JVX? If so, what is that mix and what are the other candidate aircraft under consideration?

ANSWER: The Marine Corps has identified a requirement for 6 active and 2 reserve attack helicopter squadrons. The current buy (22 AH-1Ts in FY-85 and FY-86) is required to fill existing inventory shortfalls in the first 3 active squadrons and to free up AH-1J aircraft for our first reserve squadron. These units will have 24 aircraft strength levels. Planning is underway to add the additional units in the late 80's. An improved night/marginal weather capability is desired for these assets. The Marine Corps hopes eventually to capitalize on the JVX development effort by fielding a weaponized JVX derivative that would replace our OV-10 forward air control/observation and AH-1 attack helicopter assets, filling both FAC-X/OV-X and AHX roles.

QUESTION: Describe how the Corps proposes to transition its AH-1T fleet to that high low mix.

ANSWER: Current AH-1T assets, together with the FY-85/86 buy, will form the nucleus of the Marine Corps attack helicopter force which will last well into the 1990's. The Marine Corps planned expansion of this nucleus will be addressed in the late 1980's with anticipated procurement requests for FY 87-89. In the 90's, planning calls for replacement of our aging OV-10As and Vietnam era AH-1Js with a weaponized derivative of JVX technology. The 44 improved AH-1Ts for which $17.8 million in advance procurement funding is requested in FY-84, however, are needed to fill present inventory deficiencies. Two of our active squadrons are already short of authorized strength levels and, without the 44 aircraft procurement, this deficiency would reach 30% by 1990. Our third active Squadron is equipped with Vietnam era AH-1J's. Our reserve squadron, with an authorized strength level of 24 aircraft, is 66% short with only 8 aircraft assigned. Waiting to develop a JVX derivative to fill these holes would produce a serious shortfall in required war fighting capability for several years.

QUESTION: What is the estimated AH-1J/T requirement to perform just the anti-armor mission?

ANSWER: Marine AH-1Ts are assigned eight separate mission tasks. Which of these they perform is dependent upon the operational situation. Our forces are task organized based upon the mission to be accomplished and there are scenarios where all of our attack helicopter squadrons could be required for the anti-armor mission. There are others where there is no armor threat

but attack helos would still be required. It is, therefore, very difficult to specify the number of aircraft required to perform just the anti-armor mission. All of the AH-1Ts will be capable of performing the anti-armor mission but it will be the decision of the commander as to what portion are allocated to this task versus the other priorities he must address.

BUDGET LINE 15/16--SH-60B (LAMPS MK III)

QUESTION: Specify what the non-recurring funds are required for in both FY 1983 and FY 1984.
ANSWER: In Fiscal Year 1983, the non-recurring funds are for the final increment of rate tooling ($18.6 million) to produce 5 aircraft per month and the non-recurring portion of approved engineering changes ($4.5 million). These engineering changes are required as a result of OPEVAL/TECHEVAL findings. These changes are:

Filterline Wiring
Cad Connectors
Cabin Tiedowns
HIFR Fitting
VOX Inhibit
Upper UHF Antenna
Torpedo Umbilicals
Main Rotor Spindle Retention
Cabin Lighting
Monopole HF Antenna
AI Turn Rate Scale Factor
Blackhawk Common Misc Chgs
Reposition Cockpit Multi-Purpose Display
A/C Jacking Incompatibilities

The Fiscal Year 1984 non-recurring funds are for the non-recurring portion of approved engineering changes ($3.7 million). These engineering changes are for an improved durability gearbox and implementation of other OPEVAL findings.

QUESTION: What will be the facilitized production rate as of the Fiscal Year 1983 contracts? What will it be as a result of the Fiscal Year 1984 facilitization contracts?
ANSWER: Based on the previously approved SH-60B four year production procurement program, to commence with the Fiscal Year 1982 buy, the facilitized production rate as of the Fiscal Year 1983 contracts is 5 aircraft per month. In Fiscal Year 1984 no additional tooling is planned nor budgeted; therefore, the production capacity remains at the rate of 5 aircraft per month. The SH-60B program will utilize tooling to produce a maximum of 2 aircraft per month.

QUESTION: What peculiar training equipment will be bought in Fiscal Year 1984 for the total of $84.4 million? Where will this equipment be assigned or stationed?
ANSWER: The peculiar training equipment to be bought with the Fiscal Year 1984 budget request of $84.4 million and the destination of the equipment follows:

Equipment	Destination	$M Value
Device 14B51 Weapons Tactics Trainer #4	HSL-40 NS, Mayport	10.9
Device 2F139 Weapons Systems Trainer #1	HSL-41 NAS, North Island	23.1
Device 2F139 Weapons Systems Trainer #2	HSL-40 NS, Mayport	23.1
Deployable Proficiency Trainer #1 and 2	AIRPAC	3.2
Deployable Proficiency Trainer #3 and 4	AIRLANT	3.2
Training Parts	NAMTRAGRU North Island and Mayport	10.1
Retrofit mods (same as aircraft mods)	HSL-40 and HSL-41	10.8

QUESTION: Your FY 1984 budget submission makes no reference to the possibility of a multiyear engine procurement contract in conjunction with the Army. What is the recurring unit costs of an engine purchased through the Army under their multiyear contract for FY 1983 and FY 1984 respectively?
ANSWER: The Army is currently the single source of procurement for the T-700 family of engines. The benefits of this approach to the Navy and Air Force include presenting a single face to the contractor, negotiating a combined engine buy, and receiving volume discounts of the many items which are common to the three engines.

The Navy did not budget for a multiyear procurement buy based on the uncertainty of the fiscal year quantities; however, we hope to include annual Navy engine requirements on the Army's multiyear engine contract. Currently the Army is negotiating a Fiscal Year 83-85 multiyear contract with General Electric for the combined requirements of the Services. The recurring unit cost of the engine will not be known until these negotiations are completed.

QUESTION: Why shouldn't the Navy take advantage of the Army T-700 MYP?
ANSWER: The Navy intends to take advantage of the Army T-700 multiyear procurements if the benefits are sufficient to proceed and the front end investment is affordable within our current annually structured budget.

QUESTION: Your FY 1984 request seeks funds for two weapons systems trainers (2 F-139) and 1 weapons tactics trainer (1 4B51). Will these flight simulators be used
for transition training into the LAMPS III system or
for maintenance or proficiency training at the unit level?

If it is the latter, how much flight time or simulated time will each crew member be required to obtain each month?
ANSWER: The trainers will be used for fleet replacement training (CAT I) and proficiency training for crews ashore. Due to the heavy stand up requirements and numbers of crews ashore during the first three years of operation, proficiency training will be minimum. The curriculum for proficiency training is currently being developed to

assure maximum value is received for each simulator hour required (currently estimated at 6 hours per month while ashore).

QUESTION: What is the project utilization rate of these simulators per month as a percentage of available hours?
ANSWER: The Navy standard utilization rate for these type simulators is 294 hours per month. To meet the projected training requirements, our projected utilization rate will be 320 hours per month for the first three years of operation and 294 hours per month thereafter. As a percentage of available hours, the utilization rate of the first three years will be 109%, and 100% from that time on.

QUESTION: What steps is the Navy taking to insure full utilization of its flight simulators?
ANSWER: The total number and mix of simulators requested for the program is designed to be the absolute minimum necessary to provide the required training. Currently the fleet replacement syllabus, and proficiency requirements have been developed and are being refined to assure maximum utilization of these resources.

QUESTION: Since the weapon system trainer can train the entire crew to include the ATO and the SO, and because the LAMPS MK III procurement program has been stretched out, what would be the impact of delaying the FY 1984 procurement of the 3rd weapons tactics trainer scheduled for delivery to NS Mayport?
ANSWER: Weapons Tactics Trainer #3 for NS Mayport was ordered in FY 82. Weapons Tactics Trainer #4 is planned for FY 1984. Each student requires 76 hours of weapons tactics training and 20 hours of weapons system training to properly complete the FRS course.

The answer to Question #7 indicates the planned trainer utilization rate of 100 + % during the FY 86 - FY 89 time period. This utilization rate reflects the mix of trainers required to support the Fleet Replacement Squadron (FRS) properly. Delay of WTT #4 will result in the inability to completely train a sufficient number of pipeline personnel during this period. Stretchout of aircraft procurement will not relieve this situation until FY 88 at which time the increase of proficiency training requirements will directly offset the reduction in initial aircrew training.

BUDGET LINES 17 and 18: P-3C

QUESTION: Starting with FY 1984 display by quarter the number of FMS P-3 aircraft produced by Lockheed

ANSWER: The FMS production delivery schedule for FY-84,85 & 86 is as follows:

FMS Funded Delivery Schedule

	FY 1984				FY 1985				FY 1986			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Netherlands:												
FY 1982 Proc.	1	1										
FY 1983 Proc.			2	1								
Australia (Diret Sale)												
FY 1983					2	2						
FY 1984							1	2		1	2	

QUESTION: How much will the unit cost of the P-3 come down now that it can share overhead cost with the EP-3 program?

ANSWER: The P-3C unit cost reductions as a result of shared overhead with the EP-3 have already been reflected in the 1984 Budget submission. If the EP-3 was not being produced concurrently, the P-3C unit flyaway cost would increase by 7.7% or $2.5M in constant Prior Year FY 1984 dollars.

QUESTION: What were the negotiated recurring costs on the FY 1982 production contract for the airframe, engines, engine accessories, and electronics?

ANSWER: Negotiated recurring costs for the following budget lines are as follows:

Airframes - 167.3M
Engines - 19.4M
Engine Access - 7.6M
Electronics - 89.1M

QUESTION: When do you expect to finalize or definitize the FY 1983 production contract?

ANSWER: The FY 1983 airframe contract is expected to be definitized by 30 May 1983.

QUESTION: At the end of the FY 1988 funded delivery period, what is the inventory objective for P-3 aircraft? How many P-3A/B's and P-3C's will there be at the end of the FY 1988 funded delivery period?

ANSWER: The inventory objective for the P-3C aircraft is 317 aircraft. At the end of the FY 1988 funded delivery period, there will be 47 P-3A's; 110 P-3B's and 256 P-3C's in the active inventory.

QUESTION: Briefly state the differences between the P-3C airframe and the EP-3 airframe. Why does the P-3C airframe cost 10 percent more than the EP-3 airframe?

ANSWER: The P-3C and EP-3 have the same basic fuselage, wings, engines, environmental control systems, and navigation and communication equipment. The EP-3 airframe does not have the P-3C sonobuoy launch tubes, or the acoustic radar, radar warning, MAD (Magnetic Anomaly Detection) and IRDS (Infrared Detecting Set) ASW and ASUW sensors and systems installed. The price shown for the EP-3 airframe reflects this reduced workload. The cost of installing the EP-3 mission avionics is included in the mission avionics cost sheet line item.

BUDGET LINES 19 & 20: EP-3

Question: What tooling and equipment will the $16.9m in non-recurring funding procure for each of the contractors involved? What rates of production for the various components will this support?

Answer: The $16.9m non-recurring item in the FY'84 Budget Request for EP-3 aircraft procurement is required to cover the cost of EP-3 production line start up; to initiate engineering design of the EP-3 baseline configuration, and manufacturing planning and tooling for EP-3 production. EP-3 production facitities will support a production rate of 3 aircraft per year.

Question: In light of the recent productivity enhancements funded at Lockheed through the P-3 program, why is additional facilitization required for the EP-3 program?

Answer: The recent productivity enhancements at Lockheed involve mainly the reduction of indirect expenses to a level commensurate with the lower business base. There have also been some relatively minor expenditures for P-3C tooling and tooling refurbishment which would have short-term pay-off. The existing P-3C production line will be used for the common portions of the EP-3 and P-3C aircraft, and existing vacant facilities will be used to set up the tooling and line segments peculiar to the EP-3.

Question: How is the battle group commander presently receiving his real time electronic warfare and communications intelligence support today?
Answer: The EP-3, and to a limited extent the EA-3B, are the only aircraft available to the battle group commander that provides near "real time" fused electronic warfare and communication intelligence support. Other assets which provide some electronic warfare support include the EA-6B, E-2C, S-3 and satellites.

Question: What will become of these particular aircraft and systems as the EP-3 is phased into service? Why cannot these aircraft be retained or extended in service?
Answer: The existing EP-3 aircraft are expected to be retired. Some of the systems will be retained such as radars, portions of the COMINT System, ELINT System, NAV System, radios and radomes.

The current EP-3 authorized operating service life (total number of hours the aircraft can fly before experiencing serious airframe fatigue cracks) is 17,000 hours. At this point, the aircraft's fatigue life index (FLI) becomes 1.0, and the structural inspection frequency doubles. By June of 1986, all but two of the currently operating EP-3s will have exceeded their operating service life.

BUDGET LINE 21/22 - E-2C EARLY WARNING AIRCRAFT

QUESTION: What is the inventory objective of E-2 aircraft for a 15 carrier force? As of the end of FY 1982, how many E-2B and E-2C aircraft were in the inventory?
ANSWER: The inventory objective of the E-2 aircraft for a 15 carrier force is 113 aircraft. At the end of FY 1982 the inventory was:
E-2A None
E-2B 24
E-2C 65

QUESTION: As E-2A and E-2B aircraft are phased out of carrier service, what use will be made of them?
ANSWER: There are no E-2As in the inventory. All E-2As were converted to E-2Bs. Selected E-2B aircraft are stricken and salvaged to provide spare support for the remaining inventory; thus avoiding the cost of buying spares. To date, nine E-2B aircraft of the latest airframe configuration have been assigned to Davis Monthan Air Force Base for storage as emergency/contingency assets.

QUESTION: In the way of justification for your FY 1984 request for $12.9 million in non-recurring funding, describe what the non-recurring for FY 1980 through FY 1984 inclusive has or is programmed to procure or provide. Identify associated production rates

supported for airframe, engine and associated avionics.
ANSWER:
FY 1980 $2.8M Passive Detection System - Non-recurring cost for PDS improvements including non-uniform pulse recurrence interval, automatic scan rate and passive ranging.
FY 1981 $19.4M TRAC-A - Non-recurring costs for antenna engineering change, prototype testing and drawing changes for the radar antenna housed inside the 24 foot rotodome.
FY 1982 $2.9M Parkhill - CNO secure voice plan required installation of the KY-75 in the E-2C aircraft. Operational, tempest and EMI testing was required plus an engineering change proposal.
FY 1983 $4.4M ARC-182 Radio - A prototype will be built and tested.
FY 1984 $12.9M Update Program - Non-recurring for an engineering change for the High Speed Processor associated with the update program for the radar and the computer.
A production rate of 6 A/C per year is associated with each of the changes described above.

QUESTION: The committee notes the increased production rates for E-2/C-2 airframes. This increasing production rate is reflected in the decreasing unit costs for the C-2 airframe. Why then are unit airframe costs for the E-2 increasing from the FY 1983 level at a rate nearly three times that of projected inflation rate?
ANSWER: The decreasing unit cost shown in the C-2 airframe is not attributable to the increased E-2/C-2 production rate but to the manner in which the multi-year procurement of the C-2 is budgeted. The airframe cost shown on the C-2 actually represents that portion of the entire multi-year price properly allocable to that particular year. The concurrent production of E-2 and C-2 has had an effect on E-2 pricing since the two aircraft realize an approximate commonality of 30%. This effect is realized in all years where the C-2 is being procured (FY 1983-FY 1987). The higher unit airframe costs in FY 1984 are due to configuration changes and the reduction in production quantity from 10 to 6 E-2C aircraft due to the level of FMS buys.

QUESTION: What would be the impact of a $25 million reduction in the FY 1984 airframe program or cost element?
ANSWER: The Navy would be forced to delete one aircraft from the FY 1984 buy.

QUESTION: Justify the five fold increase in peculiar training equipment proposed for FY 1984. What specifically will the $44.3 million provide?
ANSWER: Five fold increase in peculiar training equipment is due primarily to the planned procurement of an Integrated Systems Maintenance Trainer (ISMT) with a Fault Insertion Device (FID) for West Coast use. Full breakout of FY 1984 planned procurements is shown:

$31.67M	ISMT
8.10M	Video Simulation System (VSS) Lot I procurement 15F8B Tactics Trainer
2.10M	Flying Qualities Update for 2F110 Operation Flight Trainer (OFT)
.79M	2F110/2C20A NATOPS & Procedures Pages Updates/misc. ECPS
.30M	Lot III procurement - 15F8B
1.30M	E-2B - E-2C NAMT configuration modification program
$44.26M	

QUESTION: Why is such a significant increase necessary in such a mature program? How is the training being done now for which, the equipment proposed for procurement would support? Simply why is this additional equipment needed now?
ANSWER: The existing Integrated System Maintenance Trainer (ISMT) supports seven East Coast squadrons (including one training squadron) and five West Coast E-2C squadrons. Present plans for squadron transition call for expansion of this support requirement to include seven East Coast squadrons, seven West Coast squadrons (including training squadrons) and two reserve squadrons. The expansion from 12 to 14 airwings and their two additional E-2C squadrons must also be addressed. Additionally, a single site trainer for all E-2C avionics maintenance training imposes increased funding for temporary additional duty/travel and will more often than not preclude needed refresher training for squadron maintenance personnel between cruises. Ultimately, lower mission capable rates for West Coast E-2C squadrons could occur. A Video Simulation System (VSS) is required to allow complete training of student Navy Flight Officers in the E-2C weapons system. Without this system, training is degraded by 30% to 40% because of the inability to run battle group problems and other complex scenarios. Students presently receive training in the 15F8 which will be replaced by the 15F8B. The VSS in the 15F8 is of an antiquated design/technology which cannot be used in the 15F8B.

QUESTION: Provide a table by quarter of fiscal years reflecting projected deliveries of FMS sales. Identify these FMS cases by country and total buy?
ANSWER:

		Deliveries											
Country	Qty	FY-1984				FY-1985				FY-1986			
		1	2	3	4	1	2	3	4	1	2	3	4
Japan*	4	0	0	1	1	2	0	0	0	0	0	0	0
Egypt**	2	0	0	0	0	0	0	1	0	0	0	0	1

* Contracted for concurrent with FY 1983 USN production.
** A letter of offer and acceptance has not been signed for these two aircraft.

QUESTION: Are there any pending FMS cases for E-2Cs? If so, what are the quantities and countries involved?
ANSWER: The Government of Egypt has signed a Letter of Intent for the first two aircraft of a planned four aircraft buy. A letter of Offer and Acceptance is presently in work to meet the Letter of Intent. A second Letter of Offer will be prepared next fiscal year to cover the second two aircraft concurrent with the FY 1986 Navy buy. Data for use in a Letter of Offer and Acceptance is currently being prepared for the sale of four aircraft to the Government of Singapore. No formal request for the sale of the E-2C beyond Egypt and Singapore have been received to date.

BUDGET LINES 23 and 24: SH-2F

QUESTION: Briefly explain why the SH-2F program has been reduced from 90 to 54.
ANSWER: LAMPS MK I requirements for the following class ships have been projected: FF1052, FF1040, FFG-1, DD963, DD993, CG26, CGN35/38, CG47, BB-61 and WHEC378. It was determined that an SH-2F production buy of 54 aircraft, in combination with the conversion of LAMPS MK I decks to MK III, would reduce the LAMPS MK I shortages at an acceptable rate and would fully eliminate LAMPS MK I aircraft shortages by 1990.

BUDGET LINE 27/28 - C-2A COD AIRCRAFT

QUESTION: The congressional data sheets indicate that the C-2A Service Life Extension Program (SLEP) has been highly successful. Do aircraft run through the SLEP program have the same service life as new production aircraft? If so, why could not an E-2A or E-2B run through the same SLEP program to extend its service life?
ANSWER: The C-2 Service Life Extension Program (SLEP) was a successful program, adding years to the C-2 service life. It achieved this goal by essentially an indepth overhaul; replacing the wiring in the aircraft; installing all changes outstanding, and upgrading materials and finishes. The basic fatigue life of the structure was not restored. Also the basic configuration, or equipment, of the aircraft was not changed. The E-2 series aircraft has achieved its high degree of capability through an iterative series of systems performance improvements. The cost to SLEP the E-2B, and to bring it up to the mission performance capability of the current E-2C is estimated to equal or exceed the cost of a new aircraft.

QUESTION: What is the cost to run a C-2 through the SLEP program? On a comparable basis what is the cost of a new production aircraft?
ANSWER: The cost to run a C-2 through the Service Life Extension Program (SLEP) was approximately $3 million per aircraft in 1983 dollars. The cost of a new C-2A (marginal cost for the FY 87 buy of aircraft) is approximately $13.5 million (FY 83 $). SLEP, as performed on the C-2A, did not change the airframe fatigue life of 10,000 hours. This limit is projected to be reached in the 1985-87 timeframe, thus driving the requirement for replacement aircraft.

QUESTION: Explain why budgeted engine costs for the C-2 appear to be 7 to 10 percent higher than the same engines budgeted for the E-2C.
ANSWER: NAVAIR buys the T56-A-425 engines thru the Air Force on a redetermination price contract and is billed by the contractor on a calendar year delivery price. In the case of the E-2C, the FY 1984 engine requirement of 12 engines is split with 4 engines delivered in CY 1984 at the calendar year 1984 price and 8 engines delivered in CY 1985 at the calendar year 1985 price. The unit price as stated in the budget is an average. In the case of the C-2A, the FY 1984 engine requirement is 16 engines and the cost is computed in the same manner as the E-2C. The increased cost of the C-2A engines is due to the fact that these engines are delivered on a schedule of 10 engines in CY 1985 and 6 engines in CY 1986. The later delivery of the C-2A engines results in the 7 to 10 percent increase in price.

QUESTION: What will the $2.4 million in non-recurring expenditures provide for the program in FY 1984?
ANSWER: The $2.4 million in non-recurring for FY 84 is to fund the design and development of empennage changes required as a result of the tail flutter tests now in process on a fleet C-2. A combination of factors including mass unbalance, hinge point wear, free play limitation and rudder fin strength resulted in a restriction of the flight envelope on the E-2/C-2 aircraft. The aforementioned test program will define the effect of each of these factors. The $2.4 million will cover the non-recurring efforts (i.e., engineering

drawings, etc.) required to change the airframe as required to remove the flight restrictions.

QUESTION: What will the $4.7 million for peculiar training equipment procure? Why in a mature program is additional training equipment now needed? What would be the impact if this funding was denied?
ANSWER: $4.7 million planned for FY 84 is to procure two maintenance trainers not now in the inventory. One of these is scheduled to be an integrated flight deck avionics trainer (at $2.4M) and the other is planned to be an auxiliary power unit (APU) trainer (at $1.6M). The remaining $.7 million is scheduled for miscellaneous system training equipments. No C-2A peculiar training equipment presently exists. More than 60% of the avionics equipment going into the reprocured C-2A will differ from that presently in fleet C-2A aircraft. The present C-2A also has a different APU; so, this will be new equipment on the reprocured aircraft. Should this funding be denied hands-on training will not be available to maintenance personnel until they reach their fleet squadron. This transfers part of the training process to units not prepared to perform this effort; delays the date at which these maintenance personnel become fully producing squadron members, which adversely affects fleet readiness.

QUESTION: What are the recurring unit costs for the airframe for FY 1983, 1984 and 1985 negotiated in the first three years of the multi-year contract with Grumman?
ANSWER: Unit recurring costs for FY 83, 84, 85 (in Thousands):

1983	1984	1985
$19,312.5	$16,750.0	$16,100.0

BUDGET LINE 29 - T-34C TRAINER

QUESTION: What was the unit cost of the T-34C procured in the FY 1982 contract?
ANSWER: The FY 1982 unit airframe contract price negotiated with Beech Aircraft Corp. was $685,992.

QUESTION: Provide a table which shows the number of T-34B and T-28 training aircraft which must be retired due to service life limitations by year.
ANSWER: All T-34B training aircraft assigned to the Naval Air Training Command have been retired. All T-28 training aircraft will be retired in the next twelve months, concurrent with delivery of new T-34Cs. The T-34B and T-28 aircraft were not retired due to structural life limitations. They were retired due to difficult logistics supportability maintainability, poor material condition and high cost of operation relative to the T-34C.

QUESTION: Operationally, what would be the impact of returning the T-34C procurement profile back to what it was in the FY 1983 budget submission, wherein only 28 aircraft were to be procured in FY 1984?
ANSWER: Operationally there would be no impact in returning to the original program schedule for the 114 aircraft. The program

structure was changed to permit procurement at the minimum economical production rate of 38 aircraft per year.

BUDGET LINE 30 - ADVERSARY AIRCRAFT

QUESTION: For the current fleet of Navy Adversary Aircraft, prepare a table which shows the following information: Year of initial procurement, year of initial delivery, and fiscal year quarter when the aircraft will reach the end of their useful service life.
ANSWER:

F-5F	Year of Initial Procurement	Year of Initial Delivery	End of Useful Service Life
160964	October 1976	September 1977	4th Qtr FY85
160965	October 1976	October 1977	4th Qtr FY85
160966	October 1976	November 1977	1st Qtr FY86
F-5E			
160792	November 1975	May 1976	1st Qtr FY88
160793	November 1975	May 1976	1st Qtr FY88
160794	November 1975	May 1976	3rd Qtr FY88
160795	November 1975	May 1976	1st Qtr FY88
160796	November 1975	May 1976	1st Qtr FY88
159880	July 1974	October 1974	1st Qtr FY86
159882	July 1974	February 1975	2nd Qtr FY86
159881	July 1974	February 1975	3rd Qtr FY86
162307	November 1981	November 1982	2nd Qtr FY93

QUESTION: Briefly, how is useful service life determined on these adversary aircraft?
ANSWER: Useful Service Life is defined as the point in time (flight hours) when it is uneconomical to repair the structure. This determination was made by the Northrop Aircraft Corporation as follows:

Dissimilar Aircraft Combat Training (DACT) usage was determined from flight data collected at Nellis AFB. This data (spectrum) was used to perform a full scale F-5 fatigue test at the Northrop Corporation. Results from the fatigue test and laboratory analysis provided data to perform a regressive crack analysis to determine how long it took a crack to progress to the point where it would be uneconomical to repair.

This data was compiled in Northrop Corporation Aircraft Division Report No. NOR 76-167 "F-5E/F Fatigue Analysis for CP 233 Damage Tolerance Assessment Program" dated September 1977.

QUESTION: What would be the cost of a service life extension program (SLEP) for the current inventory of aircraft?
ANSWER:

SLEP Kits (Rewire)	$3,000,000
Publications	100,000
PGSE	40,000

Training	80,000
Wings	5,640,000
Engineering N/R	255,000
Flight Test	55,000
Prod. Tooling	400,000
GFE	3,648,000
Total APN-5	$13,218,000
Total APN-6	$ 1,300,000
Total O&MN	$ 1,100,000

QUESTION: What is the estimated range (min/max) of the procurement unit cost for each of the candidate adversary aircraft in FY 1984 dollars?
ANSWER: Currently four companies have indicated an interest in the adversary aircraft program, General Dynamics (F-16/J79), Northrop (F-20), Flight International (Israeli KFIR) and Marcell Dassault Breguet (French MIRAGE). Cost data for these aircraft are not available other than preliminary estimates from General Dynamics and Northrop which indicate the F-16/J79 in the $7.0 to $9.0 million range and the F-20 in the $12.0 to $16.0 million range. The F-16 cost estimates do not include the J79 engine (which would come from Navy stock assets). Radar costs are not included in either estimate.

QUESTION: Recent news articles have indicated the possibility of a leasing program for the adversary aircraft. What is the Navy's current program (straight procurement or long term lease) for the adversary aircraft program? If a firm decision has not been made at this point, when will this final decision be made?
ANSWER: There is no current plan to lease the aircraft. The Navy evaluates many possible acquisition strategies in order to determine the approach that best meets the requirement. After careful consideration of various alternatives in meeting the adversary program need, the Navy has decided to procure, not lease, the required aircraft.

QUESTION: Will these aircraft be flown by Navy pilots or contract civilian pilots?
ANSWER: Adversary aircraft will utilize Navy pilots only.

QUESTION: Provide a milestone schedule for this program indicating at least when the systems characteristics will be formalized, RFP release date, proposal due date, date of source selection and contract award.
ANSWER: The following major program milestones have been establishing to accomplish the acquisition of the adversary:

a.	Formal Operational Requirement	6 Dec 1982
b.	Systems Specification Formalized	8 Jul 1983
c.	RFP Released	8 Aug 1983
d.	Proposals Received	7 Oct 1983
e.	Competitive Range Determination	1 Nov 1983
f.	Discussions Initiated	6 Feb 1984
g.	Best and Final Offers	6 Apr 1984
h.	Source Selection Authority Decision	18 May 1984
i.	Contract Award	19 Jun 1984

QUESTION: Briefly describe the logistic support program for this aircraft to include depot maintenance support program.

ANSWER: Maintenance and logistics support at the organizational level will be provided by contractor personnel as is currently utilized in the F-5E program. If possible at the higher levels (I and D), a combination of support arrangements may be initiated. All areas of maintenance for which Navy or other service capability does not exist will initially be contractor provided. In general, support at the higher levels will be a function of the aircraft selected and the amount of organic capability available within the services.

QUESTION: If the F-5G/F-20 were selected, would a joint U. S. Air Force/Navy depot support program for F-5/F-20 aircraft be established?
ANSWER: A decision on this issue is dependent upon the future plans of the Air Force regarding the F-20 aircraft. Certainly, if large quantities of F-20 aircraft are in the Air Force's plans and depot level capability is necessary, then the Navy would consider a joint program. At this time however, the minimum number of aircraft that the Navy plans to procure most probably would not justify establishment of organic depot level capability.

Question: What has caused the program costs to go up over 40 percent in one year's time concurrent with an acceleration of the procurement profile?
Answer: The FY-84 FYDP plan contains 4 aircraft in FY 1984 at $29.1M, 8 in FY 1985 at $66.8M and 12 in FY 1986 at $115.6M. This profile was based on earlier budget estimates for additional F-5E aircraft in the same quantities. As the performance requirements for supersonic adversary aircraft has expanded to include aircraft with greatly improved performance and an increasingly sophisticated avionics capability, it was determined that the F-5E could not meet these future requirements. However, while the operational requirements have increased, an acceleration in the procurement profile beyond that cited above has not been requested.

QUESTION: What would be the impact of delaying program initiation at least until FY 1985?
ANSWER: Any delay in program initiation will result in a commensurate delay in aircraft deliveries to the adversary squadrons. Currently, the Navy possesses too few supersonic adversary aircraft to train deploying fighter aircrews effectively. This fact, coupled with the F-5Es approaching their service life limit, requires a high degree of priority in maintaining the current program milestones.

QUESTION: Briefly describe the impact of a buy America restriction applied to this program.
ANSWER: DAR 7-104.3, Buy America Act, will be included in the solicitation and offers from foreign sources will be evaluated in accordance with the provisions of that clause.

QUESTION: Explain how it is possible to buy a basically high performance fighter aircraft for under $9 million a copy when all other similar aircraft are coming in at a minimum of 50 or 60 percent more.
ANSWER: Preliminary pricing data indicate that the F-20 aircraft could not be purchased within this dollar amount. The F-16/J79, however, comes very close as General Dynamics has provided preliminary cost information in the range of $7.2 million per unit in

FY 1984 dollars (excluding engines and radar). The engines would come from existing Navy assets. It should be made clear that these data are contractor provided but substantial cost information on the F-16 is available with the Air Force. The F-16 being considered is from Block 15 which produced the F-16As and F-16Bs and has considerably less sophisticated avionics than the Block 25 aircraft which the Air Force is presently procuring.

BUDGET LINE 31/32 - T-45A AND T-45B JET TRAINER

QUESTION: Provide a breakout of the $5.2 billion program costs which shows the associated costs of the aircraft, of the simulators, of academics, and associated media devices and training management system software procured within this program.
ANSWER: The acquisition costs of the four subsystems that comprise VTXTS are as follows:

Aircraft (incl spares, support)	$4,319.7M
Simulators (incl spares)	568.7M
Non-system specific	255.4M
Academics	21.6M
Training Management System	66.2M
Total	$5,231.6M

QUESTION: Aviation Week of 11 April noted that the Navy is now pushing to buy all T-45As and that these are not needed until 1989. What specifically is the status of this VTXTS program and specifically how many T-45As and T-48Bs are to be procured?
ANSWER: The VTXTS program is presently undergoing Navy review to determine the most cost and training effective, affordable, and lowest risk acquisition strategy. The current two-phase acquisition strategy involving T-45B/A requires 54 T-45B aircraft and 251 T-45A aircraft (including 2 R&D T-45A aircraft).

QUESTION: What is the procurement unit cost of a T-45A and a T-45B?
ANSWER: The procurement unit cost of the T-45A is $15.6M (TY$); the T-45B is $15.3M (TY$). Because of the total system aspect of this acquisition, the most comparable cost regarding aircraft only would be recurring unit flyaway. The average recurring unit flyaway cost of the T-45A aircraft is $11.4M (TY$). The average recurring unit flyaway cost of the T-45B is $8.8M (TY$).

QUESTION: Provide a schedule by quarter of fiscal year of the mandatory retirement dates reflecting the quantities of T-2 and TA-4J aircraft that must be retired due to service life limitations.
ANSWER: Long range prediction of aircraft retirements are calculated on an annual, rather than quarterly, basis. The following shows retirements due to expiration of service life (flight hours) through FY-2000, as well as attritions due to operational losses. The impact of these retirements and attritions on Navy requirements, without VTXTS, are shown for purposes of comparison. As can be seen, it is predicted attrition (based on 20 years of experience), not aircraft

retirements, that is driving the near term requirement for VTXTS.

FY	T-2 Retire	T-2 Attrition	Impact (Cumulative)	TA-4 Retire	TA-4 Attrition	Impact (Cumulative)
83	-	3	-	-	9	- 1*
84	-	4	-	-	8	- 9*
85	-	3	-	-	8	- 17*
86	-	3	-	-	7	- 18*
87	-	4	-	-	7	- 24*
88	-	3	-	-	7	- 23*
89	-	3	- 3	-	7	- 19*
90	-	3	- 6	-	7	- 26*
91	-	4	- 10	-	7	- 32*
92	-	3	- 13	-	6	- 38
93	16	3	- 32	-	6	- 44
94	21	3	- 56	-	6	- 50
95	17	2	- 75	-	6	- 56
96	18	2	- 95	13	6	- 75
97	18	2	-115	20	6	-101
98	19	2	-136	19	4	-124
99	20	2	-158	30	4	-158
2000	23	2	-183	39	3	-200

*These numbers reflect a changing Navy requirement as a variety of management actions are implemented.

QUESTION: What are the G forces experienced by aircraft landing conventionally, landing on a carrier, and an aircraft executing dry field training carrier landings?
ANSWER: The estimated range of vertical "g" at the aircraft for carrier, field carrier landing practice (FCLP), and flared field landings are as follows:

Carrier	7.5g - 13.5g
FCLP	5.0g - 11.0g
Flared Field	1.0g - 2.5g

The above values of vertical "g" apply only for a landing gear designed specifically to perform carrier landings. To attempt either an FCLP or carrier landing with landing gear designed only for flared field landings would cause the landing gear to bottom and structural failure to occur.

QUESTION: What modification will be made to the T-45B to prepare it for practice dry field carrier landings? What is the development milestone schedule leading to approval of this modification?
ANSWER: The T-45B will require strengthening the main landing gear and its support structure, and installing side-mounted speed brakes. Development milestone schedule for the T-45B is as follows:

Aug 1984	- Award T-45B advanced acquisition contract
Jan 1985	- Award of first production lot contract
Jun 1987	- First flight of T-45B
FY-87/88	- Contractor flight tests and drop tests
FY-88	- Initial Training Capability (ITC)

BUDGET LINE 33--TH-57

QUESTION: Why were $3.7 million reprogrammed into the FY 1983 program?

ANSWER: $1.8 million was required due to an increase in contractor prices over original estimates. The remaining $1.9 million increase resulted from a revised cost estimate of flight instrument simulators upon completion of the detail specification.

QUESTION: $8.4 million has been added to the 84 program since last year's budget submission. What are these additional funds being used for?

ANSWER: $3.6 million has been added to the peculiar training equipment line for three (3) flight instrument simulators as a result of repricing the detail specification. Another $3.5 million was added to procure one visual system. Other support increased $.9 million including $.4 million for revised PGSE requirements and $.5 million for publications, testing and field activity support. $.4 million was added to the airframe line as a result of the FY-83 contract price.

QUESTION: Detail how the $12.8 and $16.6 million requested for peculiar training equipment in FY 1983 and FY 1984 will be spent. What specifically will be purchased?

ANSWER:

FY-1983	
3 Flight Instrument Simulators	$12.8M

FY-1984	
3 Flight Instrument Simulators	$13.1M
1 Visual System	3.5M
Total	$16.6M

QUESTION: Will these expenditures increase the pilot output rates of the school? If so, by how much?

ANSWER: The simulators are being procured to improve the quality of pilot training. Simulators will allow students to practice a full range of emergency procedures, which cannot be safely practiced in an aircraft, such as tail rotor failure, engine fire, and autorotations to touchdown in instrument conditions. The simulator also has the capability to replay student errors, simulate a wide range of weather conditions, and can be reset to refly a practice maneuver, or change scenarios much more quickly than flying an actual aircraft to different locations. Additionally, the visual system will allow students to practice simulated small ship and carrier landings.

In addition to doing a better job of training in a number of important areas, the use of simulators will reduce the syllabus aircraft flying hours from 116 to 100.5 hours per student saving $7,000 per student for an annual reduction of approximately $4 million in flight hour costs.

QUESTION: What would be the impact on these student graduation rates or through put rates of a $10 million reduction in training equipment funding in FY 1984?

ANSWER: With six simulators in service we can reduce the aircraft operating costs of the program by $4 million per year by flying some syllabus hops in the simulator vice the aircraft. A reduction of $10 million in FY-84 would reduce the number of simulators acquired to four (3 in FY-83 and 1 in FY-84) requiring an increase in aircraft syllabus hours and reducing the annual flight hour savings by $1.3 million.

QUESTION: You project inventory losses of 37 TH-57As in FY 1985 and FY 1986 due to technological obsolescence. When must those aircraft be retired due to service life limitations?

ANSWER: These antiquated aircraft are obsolete and would be eighteen years old when replaced by the FY85 procurement. The TH-57A is a Bell Model 206A helicopter which has been discontinued by almost all commercial operators. The engine, transmission, tail boom, tail rotor, tail rotor boost system, avionics, cockpit layout, and electrical system are obsolete and different than the TH-57B and TH-57C. The airframe and engine are becoming more difficult to support and maintain. The Navy investigated a Service Life Extension/Configuration Update Program for FY84 and FY85 but determined that the cost of such a program was roughly equivalent to the cost of buying new aircraft; and the life cycle cost was higher for older modernized helicopters than for a new aircraft procurement.

QUESTION: What would be the operational impact (other than costs) of continuing the TH57As in service and changing the 84 and 85 buys to 10 and 11 aircraft respectively to meet the end of FY 1985 inventory objective?

ANSWER: The TH-57A's are military versions of the Bell model 206A (JET RANGER). They began service in the Navy in 1968, forty were originally purchased; 34 remain in service today. These aircraft have served the Navy well, but they are reaching the point that serviceability and supportability are becoming major concerns.

Operationally, the impact of continued operation of these aircraft in their present condition is two-fold:

(1) The aircraft will become increasingly more difficult to maintain. This will impact both on daily availability of trainers and upon the ability to achieve programmed flight utilization rates. Together, these will effect the Training Command's ability to meet annual training requirements, but the impact cannot be quantified to any degree of confidence at this time.

(2) The early model TH-57A aircraft are not in a standard configuration with the TH-57B and C models being procured through the 1981-85 period. The later models are derivatives of the JET RANGER III and have a large number of product improvement changes incorporated in them. Virtually every aspect of the aircraft of importance to the student and mechanic has been changed over the production period between the two Navy procurements: cockpit layout and instrumentation, power plant, drive system, electrical system and flight controls, etc. The effect of retaining these older, non-standard aircraft in the training system will be that:

- Additional flights will have to be retained in the syllabus to transition students between the two aircraft as they move along in the program. This will slow down the student's progress and adversely affect the annual student output.

- The maintenance of the aircraft will be complicated with an additional different version, with different engines, systems, avionics, to support. This will add to the difficulty of meeting aircraft utilization requirements.

- With the knowledge that major overhaul and refurbishment of the TH-57A was a necessity, two years ago the Navy began planning a program that would combine the refurbishment and a configuration update at the same time during the fiscal year 1984-1985 period. The intent was to solve both the maintenance/support and operational problems of the older aircraft at the same time. However, after an in-depth survey of the condition of the TH-57A's and a detailed investigation of the scope of the effort necessary to achieve the desired results, it was discovered that it would be cheaper in the long run to purchase new aircraft than to refurbish/modernize the older aircraft and keep them in service for another 15 years. At that time, our modification effort was shifted to a new procurement program.

QUESTION: When will the training facility at Whiting Field proposed in the FY 1984 MilCon request be ready for occupancy?

ANSWER: The training facility will be ready for occupancy in May 1985.

BUDGET LINE 36/37 - ECX AIRCRAFT

QUESTION: Why is $107 million advanced procurement required for two aircraft in FY 1985 when approximately $35 million is sufficient for three aircraft in the later years of the program?
ANSWER: The FY 1984 advance procurement for the FY 1985 Congressional budget includes $58 million in long lead funds for three suites of mission avionics equipment and $27 million for long lead non-recurring production engineering and tooling required for production start up. During the later years of the program the non-recurring funding will not be required and existing mission avionics will be transferred from EC-130 aircraft.

QUESTION: What would be the programatic impact of a $50 million reduction in advanced procurement in 84 for a buy of two aircraft in FY 1985?
ANSWER: Delivery of the first aircraft would be delayed by at least one year due to non-availability of mission avionics equipment for integration into the airframes. This would result in a comparable delay in initial operating capability (IOC) for the ECX. Production costs in the early years of the program would increase due to the stretch out of production caused by the delay in receipt of mission avionics. The delay in IOC for the ECX may also require additional investment in obsolescent EC-130 aircraft.

QUESTION : When will the flight instrument trainers procured in FY 1983 and FY 1984 be delivered?

ANSWER : The six simulators procured in FY-1983 and FY-1984 will be delivered beginning in May 1985 at a rate of one per quarter.

BUDGET LINE 38 - FLEET ELECTRONIC WARFARE SUPPORT GROUP AIRCRAFT

QUESTION: What capability will this one FY 1984 aircraft provide that is not currently available in the two Navy NKC-135A aircraft?
ANSWER: This aircraft will substantially increase the capability of the Fleet Electronic Warfare Support Group (FEWSG) in two important ways:

FEWSG provides threat simulation support to Navy exercises throughout the Free World. The Navy NKC-135A aircraft participate in those exercises to the fullest extent possible. In addition, approximately 20% of their availability is devoted to supporting major Navy weapon system RDT&E,N programs. Fleet and RDT&E,N requests for the two NKC-135As exceed their operational availability by a factor of two to one. This aircraft will greatly increase FEWSG support and replace the retired EC-121.

This aircraft will have the same radar jamming simulation capabilities being installed in the two NKC-135As. Unlike the NKC-135As however, this aircraft will incorporate extensive threat simulation jamming on UHF, VHF and HF frequency Navy command control communication links. This aircraft will provide command control provisions for COMFEWSG to control and monitor ORANGE air forces in Fleet exercises.

QUESTION: What specific hardware and services will the $5.6 million requested for non-recurring costs provide for this program?
ANSWER: The $5.6 million non-recurring is required to cover planning, tooling and engineering labor hours associated with modifications to the aircraft to install the FEWSG-peculiar avionics including the major systems:

AN/ALT-40(V) Airborne Jamming Simulators
AN/ALR-75(V) Digital Receivers
AN/ALE-43 Chaff Dispensers
AN/DLQ-3B Defensive Jammer Simulators
OE-320 Digital Direction Finders
C^3 Simulator Jammer System

QUESTION: What would be the impact on this program if the $5.6 million were denied?
ANSWER: The objective of this program is to provide an airborne platform for the FEWSG mission equipment. If the $5.6 million non-recurring is denied, the FEWSG mission equipment could not be installed. The aircraft would therefore not be useful to FEWSG.

GENERAL PRODUCTION RATE QUESTION

QUESTION: For all aircraft in Budget Activity 1, provide the production rate data that was ommitted on the bottom of the

P21A exhibits. Specifically, provide the minimum sustaining production rates and the minimum economic production rates in effect for the FY 1984 funded delivery period for each production line.

ANSWER: The table below shows the minimum sustaining rate and the minimum economic rate for aircraft in Budget Activity 1.

FY 1984 PRODUCTION RATES

Aircraft	Minimum Sustaining	Minimum Economic Rate	Maximum
A-6	6	12	72
EA-6	6	6	24
AV-8	30	32	36 x/
F-14	12	30	96
F-18	- xx/	84	132 x/
CH-53	11	11	24
SH-60B	21	24	60
P-3C	5	6	24
EP-3	2	2	6
E-2	6	6	12
SH-2F	6	6	48

x/ with existing tooling
xx/ never been determined

QUESTIONS SUBMITTED BY SENATOR WEICKER

CAIG REPORT

QUESTION: In acting on the FY 84 Defense Authorization Bill, the Senate Armed Services Committee underscored the need for having independent cost estimates on major defense programs and included a provision in the bill to strengthen the role of the Defense Department's Cost Analysis Improvement Group (CAIG). Is the CAIG preparing a report on the fighter engine competition for the upcoming Defense System Acqusition Review Council (DSARC) meeting in September on the issue?

ANSWER: Yes. The DSARC Level Program Review of the competitive fighter engine program was initiated to review the key issues and tradeoffs involved in the competitive procurement. As part of that review the Defense Department's Cost Analysis Improvement Group is preparing a cost assessment of the program.

ABANDON COMPETITION

QUESTION: If the CAIG finds that the cost of procuring the General Electric F110 engine far outweighs its potential benefits, would the Air Force be prepared to abandon the competition?

ANSWER: With the proposals due very shortly, it simply doesn't make sense to abandon the competition at this point. As we have

continually stated, we have the option of procuring the F100-PW-220 as bid in a competitive environment with major warranty requirements and spare parts reprocurement initiatives. The cost of all options will be weighed against the potential benefits.

ESTIMATED UNIT PRODUCTION COST

QUESTION: In response to one of my questions, you were unable to provide the estimated unit production cost currently in use by the Air Force. An information paper dated July 19, 1983, which was prepared by the Air Force in response to questions posed by my staff, agreed that the production unit cost of the F110 engine in FY 82 dollars by its own estimates is $3.0 million -- $600,000 more than the $2.4 million unit cost for the F100-220. Now is this accurate information or is it not?

ANSWER: Since we are in a formal source selection, specific engine cost estimates could be used by the competing contractors and are thus not provided; however, the rough magnitude of our budgeted unit cost difference which you quote is relatively accurate. This is not surprising since the F110 must start well up on the learning curve and would be expected to cost more initially. Both engines offer substantial improvements which may well offset the higher initial costs. Our estimates also project this overall life cycle cost savings. Only when actual proposals are available and are evaluated will the Air Force be able to select the best course of action. This could include a single award to one contractor, bid in a competitive environment.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

NEXT GENERATION TRAINER/PROGRAM CUTS

QUESTION: The Air Force is in the beginning stages of purchasing its next generation trainer, the T-46. You requested $123.5 million in research and development funds for this program. The Senate Armed Services Committee cut $10 million from this request. The House Armed Services Committee cut $20 million from your request. This amount was restored by House Amendment No. 229 to H.R. 2969, which was offered by Rep. Byron and approved by the House on July 21, 1983. If the Senate's lower funding level were to be adopted by the Conference Committee, what impact will this reduction have on the Next Generation Trainer program?

ANSWER: The Authorization Conference Committee adopted the House's full funding level of $123.5 million. A cut of $10 million, as proposed by the SASC, would have a serious impact on the T-46A program. Fixed price incentive firm contracts, with terms very favorable to the Government, were negotiated in 1982 in a competitive environment with Fairchild Republic Company (FRC) and Garett Turbine Engine Company (GTEC).

It is possible the Government will be unable to meet its schedule and testing obligations under the current contracts with a $10 million cut in RDT&E. These contracts may have to be renegotiated in a sole source environment because such events as static article testing, ejection seat verification,

engine testing, and first flight will be delayed without the full RDT&E request.

Additionally, any reduction in this program will have to be added back in FY 85 in order to keep the program viable. Such a schedule slip could delay the program up to one year and result in large cost increases in RDT&E and production. A one year slip in IOC will also necessitate a $10 million modification to the T-37. If the T-46 IOC slips, there will be an insufficient number of T-37s to train the number of pilots programmed in the FYDP.

A shortfall of 400-500 pilots can be expected. The T-46 will be much less expensive to operate than the T-37; consequently, approximately $78 million in savings will be lost due to a one year IOC slip. Additionally, delay of the T-46 would require longer use of the T-37 with its safety and training deficiencies. The T-37 has the largest number of, and most serious, physiological incidents of any Air Force aircraft.

The low single engine performance and outdated ejection system put the pilots in a dangerous envelope immediately after take off should an engine fail. Air Force would continue to lose 10-15% of its sorties to adverse weather conditions. Because the the T-37 operates at lower altitudes than the T-46, training disruptions due to conflicts with civil air traffic would continue to be a problem for this additional period of time.

T-46 FUNDING LEVEL

QUESTION: I would expect you to press for full funding for the the T-46 program. What funding level for the next generation trainer would you like to see emerge from the conference on the Defense Authorization Bill?

ANSWER: The Air Force did press for full funding of $123.5 million for the T-46 program. The Authorization Conference Committee approved the $123.5 million request.

T-46 PROGRAM PROGRESS

QUESTION: I have been informed the T-46 program is proceeding as planned, which is very gratifying news indeed. Is the Air Force satisfied with the progress the next generation trainer program is making?

ANSWER: Yes. Full Scale Development (FSD) has been in progress for 13 months. Preliminary Design Review was successfully completed in February, 1983. The program is proceeding on schedule and has not encountered any major problems.

ENCHANCED JTIDS

QUESTION: The Air Force requested $57.9 million for development of enhanced JTIDS as part of its advanced communication systems program. The House Armed Services Committee deleted all funds for this system. The Senate Armed Services Committee cut $5 million from your request. In an earlier hearing before this Committee, both Secretary Delauer and Secretary Cooper expressed support for the full requested funding level. Moreover, this program is one of the tactical Air Force's highest priorities. What impact will a funding reduction have on enhanced JTIDS?

ANSWER: Deletion of all funding would delay the initial opera-

tional capability by at least two years from the second quarter of FY 1988 to the second quarter of FY 1990.

AF VIEWS ON IMPORTANCE OF ENHANCED JTIDS

QUESTION: What are your views on the importance of enhanced JTIDS to the Air Force?

ANSWER: The Air Force considers the Enhanced JTIDS Program absolutely essential to the effective operation of our Tactical Air Forces (TAF). EJS is a major force enhancement and force multiplier program. It allows our tactical Air Forces to "talk" and exchange time sensitive and critical information in an intensive jamming environment. The EJS Program is urgently needed to counter the projected long-term communication jamming threat. [Deleted].

[Deleted] Jam resistant UHF voice communication ranks #2 on overall TAF RD&A priority list and #1 of all TAF C^3I programs.

FUNDING LEVEL FOR JTIDS

QUESTION: What funding level for enhanced JTIDS would you like to see emerge from the Conference on the Defense Authorization Bill?

ANSWER: The Air Force requested $57.9 million for the development of Enhanced JTIDS. The Authorization Conference supported $32.7 million. This will slip the Initial Operating Capability (IOC) for EJS into 1989.

If we are to counter the projected Soviet jamming threat, the full requested funding level of $57.9 million is required.

COMMITTEE REDUCTIONS FOR F-15s

QUESTION: The Air Force requested 48 F-15s in fiscal year 1984. This request was reduced to 36 by the Senate Armed Services Committee and to 30 by the House Armed Services Committee. The House also eliminated requested funds for E-3A AWACS Advance procurement. Some F-15 procurement is based upon the plan to re-equip our interceptor squadrons with modern aircraft to make continental air defense credible again. What impact will these reductions have on your plans for improving our continental air defense?

ANSWER: The proposed reductions will have an adverse impact on Air Force, DoD , and NORAD plans for modernizing and improving the capability of forces dedicated to North American air defense. The DoD North American Air Defense Master Plan, approved by Secretary Weinberger and sent to Congress in March 1982, calls for the conversion of all five aging active duty F-106 squadrons to the more capable and modern F-15. The plan also recommends procuring 12 additional E-3A AWACS aircraft specifically for the defense of North America. The reduced authorizations impact both of these planning objectives.

Anticipated reduction in F-15 authorization weighed heavily in the recent Air Force decision to deactivate the active duty F-106 Unit at KI Sawyer AFB, Michigan in lieu of conversion to the F-15 aircraft. The air defense mission of the deactivated Unit will be assumed by an Air National Guard Unit at Duluth, Minnesota which will be equipped with F-4D aircraft. Even though the F-4D is still an aging aircraft it is more feasible to support logistically than

the F-106. The Air Force considers the F-4D equippage to be an interim measure that hopefully can be rectified with future authorizations of more capable and modern aircraft.

Similarly, reductions in E-3A advanced procurement would adversely impact planned capability enhancements. CINC NORAD has stated that an adequate number of AWACS is needed to effectively use early warning information to manage and control our interceptor forces in time of hostilities. The CINCs requirement for additional AWACS is set at 12 aircraft.

SOVIET BLACKJACK BOMBER

QUESTION: Given the predicted production of the new Soviet Blackjack long range supersonic manned bomber, how important is it to provide these new interceptors to our air defense squadrons?

ANSWER: Very important. The Soviet airbreathing threat is increasing rapidly instead of decreasing as many held to be the most likely threat forecast during the 1960s. The Soviet bomber and cruise missile attack forces will have significantly enhanced capability during the late 1980s. During the decade, the Soviet bomber fleet will be modified as well as receive newer, more capable aircraft. BISON are expected to remain in the force well into the 1980s while BEAR will remain in service well into the 1990s. The newest Soviet strategic bomber, BLACKJACK, could achieve Initial Operational Capability, (IOC) as early as 1986 or 1987. It is estimated that about 100 BLACKJACK could be operational by [deleted]. The Soviets are continuing to deploy BACKFIRE whose numbers are expected to double by about 1990. A [deleted] is currently in production. The Soviets are presently developing at least two new long-range, land-attack cruise missiles expected to be a threat to the CONUS: the SS-NX-21 sea-launched cruise missile (SLCM), and the (d) air-launched cruise missile (ALCM).

IMPROVEMENT EFFORTS

QUESTION: Since any F-15s and AWACS aircraft procured for continental air defense could be deployed and employed in a tactical role if the need arose, do you believe it is wise to stop efforts to improve our continental air defense?

ANSWER: No, it is not. Terminating on-going and planned initiatives for modernizing and improving our dedicated force structure for the air defense of North America would be counter to the objectives of the Air Force and DoD as set forth in the DoD North American Air Defense Master Plan. While it is conceivable that National Command Authorities (NCA) could deploy dedicated CINCAD air defense forces overseas and employ them in a tactical role, there is no current war plan that commits dedicated air defense assets in this manner and the likelihood of this happening is extremely remote. Conversely, it is considered far more likely that a reverse augmentation could occur. That is, current war plans outline specific procedures for tactical air forces being used to augment CINC NORAD/CINCAD forces should the need arise.

PENETRATION OF AIR SPACE

QUESTION: Since drug smugglers are penetrating our air space from the south with ease, unless Air Force AWACS or Navy

E-2Cs are operating with law enforcement units, do you believe enemy aircraft based in Cuba would present a serious potential threat to the United States?

ANSWER: Cuban aircraft do not constitute a significant military threat to the United States. The Cuban Air Force has only a limited capability to strike targets in the Southeastern United States with conventional ordnance, though this capability [deleted]. Regardless, the Cuban Air Force is expected to remain essentially defense oriented and non-nuclear. [Deleted].

A more serious threat might be posed by Soviet use of Cuban airfields as either staging or recovery bases for bombers and reconnaissance aircraft. At [deleted] Cuban airfields are capable of accommodating any Soviet bomber. However, no Soviet strike aircraft (bombers or fighter-bombers) have ever operated out of Cuban airfields, and while we cannot discount such a possibility in the future, we consider it [deleted].

However, recovery of some Soviet bombers in Cuba following strikes on the U.S. during a nuclear war is possible.

U.S. TARGETS FOR CUBAN MIG-27s

QUESTION: If Cuban MIG-27s were sent on one-way missions armed with nuclear weapons, what targets in the United States would be within their reach? Assume they flew under our radars as the drug smugglers do until they penetrated our domestic air space.

ANSWER: Cuban MIG-27s are export versions which are not nuclear capable. The aircraft lack [deleted]. However, if the aircraft were modified to carry nuclear bombs or replaced with nuclear-capable versions, they could be used to attack targets in the United States. Assuming take off from San Antonio de los Banos airfield, a low altitude penetration for the first 160 nm (the distance to the south coast of the Florida peninsula) and a high altitude profile from that point on, a MIG-27 carrying [deleted] could attack any target within a range arc of approximately (d). Additional distance flown at low altitude would progressively shorten the range. For example, an identically equipped MIG-27 flying entirely at low altitude would have a maximum range of only [deleted] the distance to a point approximately [deleted].

QUESTIONS SUBMITTED BY SENATOR STENNIS

AF GOAL

QUESTION: The Navy goal is to attain an aircraft mission capable rate of 70 percent. What is the Air Force goal and actual achievement?

ANSWER: The overall Air Force aircraft mission capable rate goal is 75 percent. The actual rates for FY 81 and FY 82 were 65 and 67 percent respectively. However this goal is an estimate of the maximum that is achieved with the design characteristics (especially reliability and maintainability) of the equipment, with planned peacetime usage, and with full funding and optional

operations of the peacetime manpower and logistics support system.

DELAY IN FUNDING FOR ATF

QUESTION: The planning had been to award contracts for technology and concept analysis for the Advanced Technology Fighter in June 1983. I understand this had now been delayed until August at the earliest. What will this delay do to the funding requested for this item in fiscal year 1984?

ANSWER: This delay will not change the overall funding request for FY 1984. There will be no impact because we expect to complete the concept definition investigation by August 1984.

CONTRACT FOR INITIAL DEVELOPMENT EFFORT

QUESTION: Is it still your plan to award eight contracts -- one to each of the major aircraft manufacturers -- for this initial development effort?

ANSWER: Up to eight contracts will be awarded for development of alternative design concepts.

PROJECTED FULL-SCALE DEVELOPMENT FOR ATF

QUESTION: Will the delay push back the projected full-scale development planned for 1987?

ANSWER: The delay in awarding contracts for technology and concept analysis will not cause a delay in the projected full scale development start.

AF OUT OF JVX PROGRAM

QUESTION. There are reports that the Air Force wants out of the JVX Program. What can you tell us about this?

ANSWER. The Air Force, in preparation for the FY 85 DOD Budget Estimate submission to OMB, and in conjunction with the other services and the Defense Resources Board, is reviewing all joint service programs. It would be premature conjecture to state a service position relevant to the JVX program until this review is completed.

JUSTIFY TWO AIRCRAFT FOR MISSIONS FOR JVX

QUESTION. Your needs for this aircraft have been based on the requirement for the combat search and rescue and for "unconventional warfare" missions. Yet, the Air Force is buying the Nighthawk or Blackhawk derivative helicopters for these missions. Can the Air Force justify two aircraft for these missions?

ANSWER. While these programs both address validated requirements in Air Force Special Operations and Combat Rescue, they are significantly different in

scope and timing and represent a two-phased approach to meeting mission needs. In the near term the HH-60D satisfies the immediate need to replace the current fleet of obsolescent, difficult-to-maintain aircraft, to increase force size to an acceptable level and to develop the night/adverse weather avionics which will also serve as the core avionics for the MC-130 and the JVX. The H-60D will also be needed in the long term for short to medium range missions in higher threat environments where small size, low altitude, low speed and high maneuverability are essential.

In the long term (mid 90s and beyond), JVX is an opportunity to take advantage of a joint development program to produce an advanced technology aircraft that promises to fill critical special operations long-range vertical lift requirements. JVX will also provide a fallout capability for combat rescue where rapid response (higher speed) and extended range are essential.

A mixed fleet of HH-60D and JVX aircraft will achieve the full spectrum of vertical lift capability required to perform the worldwide combat rescue/special operations mission - a capability neither aircraft alone can provide.

LACK OF REAL COMPETITION

QUESTION: Approximately 34 percent of the joint program funds were to come from the Army, which now appears to be withdrawing from the JVX program. Do you believe this program can be sustained by the Air Force and Marine requirements?

ANSWER: No. The Department of Defense feels that JVX must be a joint Navy, Army, Marine, and Air Force program to be viable.

QUESTION: There appears to be a lack of real competition in this program. Are you concerned by this?

ANSWER: No. A competitive Request for Proposal was released 17 January 1983 for the Preliminary Design (PD) phase. A single contractor responded on 17 February 1983. On 25 April 1983 the Navy signed the PD contract with the team of Bell-Textron and Boeing Vertol. Based on 25 years of experience on four tilt-rotor designs, the risk of Bell-Boeing developing the JVX to the joint service requirements is thought to be low by all participants.

NASA, which has been involved for over 10 years in the testing of XV-15 technology demonstrator, confirms the Service's assessment. The Navy has every intention of doing whatever is necessary to maintain competition in this program through the production phase. There are various techniques which might be employed to do this and we are considering them at this time.

It would be premature at this point to discuss what we might do, but we will have our strategy for production competition formulated by the time we present our plan for program continuation to the Secretary of Defense at the Milestone II decision point in mid 1985.

DUAL ROLE AIRCRAFT

QUESTION: Tell us a bit more about the on-going evaluation of the F-16XL and the F-15E aircraft for the Dual Role Fighter requirement. Do you envision a new aircraft coming out of the evaluation or an evolutionary improved version of the aircraft selected?

What sort of quantities are we speaking of for this aircraft?

What is the Initial Operational Capability (IOC) for this aircraft?

Does it appear that the current F100 engine has adequate thrust for these aircraft to perform the Dual Role Fighter mission?

ANSWER: The Dual Role Fighter will be an evolution of the current F-15 C/D or F-16 C/D.

For planning purposes a minimum of 400 Dual Role Fighters has been assumed.

An Initial Operational Capability (IOC) date has not been established for the Dual Role Fighter since it will be dependent upon which aircraft is selected. However, for planning purposes a late 1980s capability has been projected.

Flight test results to date are tracking very closely with analytical predictions. The predictions indicated that the specified thrust of the F100 engine will be adequate for either aircraft to perform the Dual Role Fighter mission.

SUBCOMMITTED RECESS

Senator STEVENS. We appreciate you gentlemen being here.

[Whereupon, at 11:55 a.m., Thursday, July 28, the subcommittee was recessed, to reconvene at the call of the Chair.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1984

THURSDAY, AUGUST 4, 1983

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:10 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Weicker, Kasten, D'Amato, Rudman, and Proxmire.

DEPARTMENT OF DEFENSE

OFFICE OF THE INSPECTOR GENERAL

STATEMENT OF THE HONORABLE JOSEPH H. SHERICK, DEFENSE INSPECTOR GENERAL

SPARE PARTS MANAGEMENT AND PRICING POLICY

OPENING STATEMENT OF SENATOR STEVENS

Senator STEVENS. Good morning, Mr. Sherick.

This is the time scheduled to review the contracting procedures and program management practices involved in the procurement of spares and repair parts for the weapons systems and equipment of the military services. Public revelations recently on the results of departmental audits and investigations have focused national attention on sometimes extreme cases of overpricing, and the committee needs to look closely into this problem as part of its preparation for reporting the fiscal year 1984 Defense appropriation bill. I think the work that has already been started by Senator Grassley of Iowa requires this committee to pursue this at this time.

It is not my intent, nor do I believe it is the committee's intent to sensationalize this problem or to castigate the Department unnecessarily. Rather, we need to define this problem—to single out the management deficiencies that permitted these costs to get out of hand. Then we need to determine exactly what the Department and the military services have been doing and intend to continue to do to correct the problem, and whether these measures are sufficient and effective, and whether any changes in the law may be required.

SPARE PARTS SPENDING

Spare parts sounds like a dull subject, but it is not a minor concern to those of us who are involved in trying to control spending. The appropriations for spare parts in the current fiscal year exceeds $8.8 billion, but they are budgeted to rise to $13.5 billion in fiscal year 1984, the bill we are working on now. That leads the subcommittee to yet another question of whether this total spending will come down if more efficient management of spare parts procurement is instituted and overpricing is brought under control.

We have not had the departmental statements long enough to really be able to prepare for this hearing. We did not get them until late yesterday afternoon. I hope that in future hearings on this and other subjects we will be able to get them sooner so that we will be able to review them. It is our intention to proceed with Mr. Joseph Sherick, the Inspector General for the Defense Department first, and then we will go to other departmental witnesses that we have scheduled to appear.

Let me state at the outset that all prepared statements will be printed in full in the record. We will ask the witnesses to highlight their statements, if they will do so, and keep the highlights brief so that we may have ample time for questions. It is my hope that we will get through the matters that we have scheduled for today.

I want to see if my colleagues have any statement to make at the beginning of this hearing.

Senator Rudman.

Senator RUDMAN. No.

Senator STEVENS. Senator Weicker.

Senator WEICKER. No statement.

[The prepared statement of Senator D'Amato follows:]

PREPARED STATEMENT OF HON. ALPHONSE M. D'AMATO

U.S. SENATOR FROM NEW YORK

MR. CHAIRMAN:

I WANT TO FIRST EXPRESS MY THANKS TO YOU AND TO YOUR STAFF FOR ARRANGING TODAY'S HEARING. RECENT DEVELOPMENTS WHICH HAVE RECEIVED WIDE COVERAGE IN THE MEDIA HAVE MADE IT APPROPRIATE FOR US TO AGAIN REVIEW THE VITAL ISSUE OF DEFENSE SPARE PARTS PROCUREMENT PRACTICES.

WHILE THE MEDIA HAVE TAKEN NOTICE OF THE HORROR STORIES INVOLVING FOUR CENT DIODES BEING PURCHASED AT A COST TO THE TAXPAYER OF ONE HUNDRED TEN DOLLARS, LITTLE ATTENTION HAS BEEN PAID TO THE ROOT CAUSES OF THE PROBLEM. I INTEND TO EXPLORE SOME OF THOSE CAUSES IN DETAIL IN MY QUESTIONS TO TODAY'S WITNESSES, BUT I THINK A SHORT REVIEW OF PAST HISTORY WILL SET THE STAGE FOR MY QUESTIONS.

MANY LARGE CORPORATIONS WHICH WERE HEAVILY DEPENDENT ON DEFENSE SPENDING SUFFERED WHEN SPENDING ON DEFENSE WAS CUT BACK FROM ITS VIETNAM WAR PEAK. IN FACT, TOTAL DEFENSE SPENDING SHOWED A REAL DECLINE EACH YEAR FROM 1969 THROUGH 1977. AS A RESULT, CORPORATE LEADERS SOUGHT TO DIVERSIFY INTO CIVILIAN AND CONSUMER PRODUCT LINES, SO THEIR FINANCIAL PERFORMANCE WOULD NOT BE TIED TO DEFENSE SPENDING LEVELS.

THIS APPROACH PROVED WISE UNTIL THE ECONOMIC SETBACKS OF THE PAST SEVERAL YEARS OCCURRED. SUDDENLY, THE CIVILIAN MARKET WAS SHRINKING. INVENTORIES HAD TO BE REDUCED, SO PROFIT MARGINS WERE CUT. FINANCIAL PERFORMANCE BEGAN TO SUFFER. CORPORATE LEADERSHIP BEGAN TO LOOK TO THEIR DEFENSE BUSINESS AS A SOURCE OF PROFITS AS A RESULT OF OUR CURRENT MODERNIZATION PROGRAM.

MAJOR WEAPONS SYSTEMS COSTS, CONTRARY TO MUCH PUBLIC OPINION, ARE SUBJECTED TO CLOSE MONITORING. IT IS DIFFICULT TO WRING VERY MUCH ADDITIONAL PROFIT FROM A SYSTEM WHOSE COSTS ARE REPORTED BOTH TO THE PUBLIC AND TO

CONGRESS. SO, THE MOST NATURAL THING IN THE WORLD WAS TO TURN TO SPARE PARTS AS A SOURCE OF INCREASED PROFITS.

THIS IS A PARTICULARLY CONVENIENT TACTIC WHEN SPARE PARTS PRICES ARE NOT SUBJECT TO ROUTINE CONGRESSIONAL OR PUBLIC SCRUTINY AND WHEN PRICES CAN BE SET UNDER BASIC ORDERING AGREEMENTS WHICH ALLOW THEM TO BE REDETERMINED FROM TIME TO TIME WITHOUT COMPETITION. AS THE MANY INVESTIGATIONS AND STUDIES OF THIS ISSUE SHOW, LACK OF COMPETITION FAVORED SPARE PARTS AS A PLACE TO LOOK FOR EASY INCREASES IN PROFITS. WHEN MANY PARTS ARE PROCURED UNDER SOLE SOURCE CONTRACTS OR RESTRICTIVE CONTRACTS, THERE IS NO PRESSURE TO KEEP PRICES DOWN.

THE GOVERNMENT IS SUPPOSED TO ENSURE THAT THE PRICES IT PAYS FOR PARTS ARE REASONABLE. PROCUREMENT OFFICERS ARE RESPONSIBLE FOR TAKING NOTE OF THE PRICES THE CONTRACTORS ARE OFFERING ON PARTS AND REFUSING TO PAY PRICES WHICH ARE OUT OF LINE. PROCUREMENT OFFICERS ARE RESPONSIBLE FOR ENSURING THAT PROFIT MARGINS ARE REASONABLE.

THE DEFENSE CONTRACT AUDIT AGENCY'S AUDITORS ARE RESPONSIBLE FOR MONITORING THE PROCESS. THEY CONDUCT PRE-AWARD AUDITS, THEY REVIEW PROPOSED CONTRACTS, AND THEY CONDUCT POST-AWARD AUDITS OF SELECTED CONTRACTS. THEY ARE ESSENTIALLY THE WATCHDOGS THE DEPARTMENT OF DEFENSE EMPLOYS TO MAKE CERTAIN THE PROCESS IS HONEST, IS CONDUCTED EFFICIENTLY, AND IS CONDUCTED IN ACCORDANCE WITH THE DEFENSE ACQUISITION REGULATIONS AND APPLICABLE STATUTES.

I AM CONCERNED THAT THE WATCHDOG'S TEETH MAY HAVE BEEN PULLED. WHILE JOE SHERRICK'S PEOPLE HAVE DONE AN ADMIRABLE JOB INVESTIGATING THIS PROBLEM, IT WAS THE D.C.A.A.'S JOB TO ENSURE THAT THE PROBLEM DID NOT ARISE IN THE FIRST PLACE. IN THAT, THEY FAILED MISERABLY. WHILE THEY WERE SUPPOSED TO BE EXAMINING THE DEPARTMENT'S SPARE PARTS PROCUREMENT ACTIVITIES TO MAKE CERTAIN THE U.S. TAXPAYER WAS GETTING A FAIR AND HONEST DEAL, PRICES SHOT UP AND SO DID PROFITS, AND THE NEWS MEDIA BEGAN REPORTING HORROR STORY AFTER HORROR STORY ABOUT WASTE, FRAUD AND ABUSE. WHERE WAS D.C.A.A. WHILE ALL THIS WAS GOING ON?

A RECENT CASE WHICH RECEIVED SOME PUBLIC ATTENTION MAY PROVIDE THE

EVIDENCE WE NEED TO ANSWER THIS KEY QUESTION. MR. GEORGE R. SPANTON, THE D.C.A.A. RESIDENT AUDITOR AT PRATT & WHITNEY'S GOVERNMENT PRODUCTS DIVISION IN WEST PALM BEACH, FLORIDA, WAS FOUND BY THE U.S. MERIT SYSTEM PROTECTION BOARD, THE BODY SET UP TO PROTECT THE RIGHTS OF U.S. CIVIL SERVANTS, TO HAVE BEEN THE VICTIM OF PROHIBITED PERSONNEL PRACTICES WHICH INVOLVED THE HIGHEST LEADERSHIP OF THE D.C.A.A., ALLEGEDLY AS A RESULT OF HIS EFFORTS TO EXPOSE WASTE, FRAUD, AND ABUSE IN U.S. AIR FORCE SPARE PARTS CONTRACTS WITH PRATT & WHITNEY.

IS THERE TOO CLOSE A RELATIONSHIP BETWEEN THE WATCHDOG AND THE PEOPLE HE IS SUPPOSED TO BE WATCHING? ARE WE MORE CONCERNED ABOUT MAINTAINING A HARMONIOUS WORKING RELATIONSHIP AND DOING BUSINESS AS USUAL THAN WE ARE ABOUT FERRETING OUT PROBLEMS AND SAVING THE TAXPAYER'S DOLLAR? IN THE PRESENTATIONS BY THE OFFICE OF THE SPECIAL COUNSEL OF THE MERIT SYSTEM PROTECTION BOARD IN THE SPANTON CASE, IT WAS ALLEGED THAT PRATT & WHITNEY STATED THAT THEY WOULD NOT PROVIDE DATA REQUIRED TO COMPLETE AUDITS TO MR. SPANTON, BUT THEY WOULD PROVIDE IT TO ANY OTHER AUDITOR. AND THE LEADERSHIP OF THE D.C.A.A. CITED THESE COMPLAINTS APPROVINGLY IN THEIR ACTIONS AGAINST SPANTON. WHY DIDN'T THEY INSTEAD PRESS PRATT & WHITNEY TO PROVIDE THE DATA?

ON MONDAY, I WROTE TO SECRETARY WEINBERGER CONCERNING THE SPANTON CASE AND THE ROLE THE D.C.A.A. LEADERSHIP PLAYED IN THIS CASE. I STATED THAT THE MERIT SYSTEM SPECIAL COUNSEL HAD FOUND THAT THE DIRECTOR OF THE D.C.A.A., MR. CHARLES O. STARRETT, JR., THE DEPUTY DIRECTOR OF THE D.C.A.A., MR. JAMES R. BROWN, THE D.C.A.A. ATLANTA REGION DIRECTOR, MR. PAUL EVANS, AND THE D.C.A.A. ATLANTA REGIONAL AUDIT MANAGER, MR. ARLIN R. TUELLER, HAD ALL VIOLATED VARIOUS PROVISIONS OF FEDERAL LAW, SPECIFICALLY SEVERAL SUBSECTIONS OF TITLE 5 U.S. CODE SECTION 2302, BY THEIR CONDUCT IN THE SPANTON CASE.

I STATED MY STRONG BELIEF THAT THE HIGHEST OFFICIALS OF THE AGENCY CHARGED WITH FERRETING OUT WASTE, FRAUD, AND ABUSE IN DEFENSE CONTRACTS SHOULD BE FREE OF EVEN THE SUSPICION OF WRONG DOING. UNDER POINT TWO OF SECRETARY WEINBERGER'S NEW PROGRAM, IT WOULD SEEM INCUMBENT UPON THESE

OFFICIALS TO EACH TAKE A LEAVE OF ABSENCE UNTIL THESE CHARGES ARE FULLY AND INDEPENDENTLY INVESTIGATED AND RESOLVED. I BELIEVE THE CREDIBILITY OF THE DEPARTMENT'S RESPONSE TO THESE SPARE PARTS PROCUREMENT HORROR STORIES IS AT STAKE HERE. I HAVE NOT YET HAD A RESPONSE TO MY LETTER, BUT I BELIEVE SECRETARY WEINBERGER WILL AGREE THAT HIS PROCUREMENT WATCHDOGS MUST HAVE ALL OF THEIR TEETH AND MUST NOT BE DISCOURAGED BY THEIR OWN SUPERIORS FROM DOING THE BEST JOB THEY KNOWN HOW TO SAVE THE TAXPAYER MONEY.

SINCE SECRETARY WEINBERGER IS NOT AMONG TODAY'S WITNESSES, I CANNOT ASK HIM ABOUT THIS PROBLEM DIRECTLY. I WILL, HOWEVER, REVIEW SOME ASPECTS OF THE OPERATION OF THE DEPARTMENT'S INTERNAL CONTROLS IN THE COURSE OF MY QUESTIONS FOR THE WITNESSES.

THANK YOU, MR. CHAIRMAN.

Senator STEVENS. Mr. Sherick, I am pleased to have your appearance, the committee is. I would like to ask you to proceed as requested, please.

STATEMENT OF JOSEPH H. SHERICK

SPARE PARTS PROCUREMENT

Mr. SHERICK. Mr. Chairman, and members of the committee I am pleased to testify today on the procurement of spare parts by the Department of Defense. As you indicated, Defense spends billions of dollars annually to procure millions of spare parts.

The Department has paid high, and in some cases exhorbitant prices for certain spare parts. You are all aware of the horror stories, such as the diode that cost 4 cents through our supply system, but we paid $110 to a contractor. There is no doubt that something is wrong here. I do not think that these are just random mistakes that occur in any major procurement as some suppliers would have us believe.

The reports bearing on spare parts issued by the Defense IG and Service auditors are the basis for much of the attention of both the media and the Congress. The Department of Defense is itself uncovering and addressing these problems. I believe good progress has been made and will continue to be made.

For my part, I will continue to audit the purchase of spare parts and my auditors are currently examining six different aspects of the problem and will begin four additional audits in the next 6 months.

DOD AUDITING

DOD's own audits have identified various situations that contribute to our problem. For example, inadequate technical data that unnecessarily constrains competitive procurement actions; cases where DOD had adequate competitive procurement information, but failed to seek competitive prices because it was easier, quicker, and less risky to buy sole source; parts were bought at high prices from end-item manufacturers even though the same parts were available in the Federal supply system at substantially lower costs; and the clericalization of the procurement process.

On the plus side, our audits show that the Department has done some things right. For example, in May 1983 we issued two quick-action reports criticizing the Navy for not obtaining spare parts through the Federal supply system.

In an attempt to determine just how widespread this problem was, we expanded the scope of the audit to include the other services. We found that the Army and the Air Force were indeed obtaining items with national stock numbers through the Federal supply system when it was advantageous to do this.

We also found that the Navy had in fact on other programs used the Federal supply system—so it was not a problem widespread completely across the Navy.

Let me turn now to what I believe are some of the causes of the problem.

In the past, we have not made all of our procurement and inventory management people sufficiently price conscious.

Procurement personnel often go through a clerical process giving little thought to price comparison with previous buys and, therefore, to what the items should cost.

Some basic ordering agreements allow contractors to set or redetermine the price at the time of delivery.

Some supply and procurement officials have been reluctant to seek competition because it is deemed faster, easier, and safer for them to buy sole source.

DOD has not made adequate system reviews of many of our contractors' operations.

Finally, we have found that the true extent to which we obtain competition on spare parts' procurement has been obscured. There is no easy solution to these problems. We have to change attitudes and let both the responsible government officials and the contractors know that it is no longer business as usual.

DOD CHANGES IN SPARE PARTS ORDERING AND PURCHASING

When Secretary Weinberger became aware of the problems in spare parts' procurement, he announced major changes in the way DOD orders and purchases spare parts. The actions he outlined include:

One, establishing incentives to increase competitive bidding and rewarding employees who vigorously pursue cost savings;

Taking disciplinary action against employees who are derelict in their duties.

Alerting defense contractors to the seriousness of the problem and asking them to pursue fair pricing practices and reward or discipline their employees where appropriate.

Relying upon competition advocates in the services to challenge orders that are not competitively placed or appear to be excessively priced.

Refusing to pay unjustified price increases.

Accelerating reforms on the use of basic ordering agreements.

Senator STEVENS. Mr. Sherick, Senator Rudman will continue. I have got to take a phone call.

Mr. SHERICK. Obtaining refunds where contractors have overcharged, including suing the contractor to recover unjustified payments.

When alternative sources of supply are available, ceasing to do business with the contractors who are guilty of unjustified and excessive pricing and who refuse to refund improper charges.

And of course, continuing audits and investigations of both spare parts and the process by which we buy spare parts.

Mr. Chairman, I think we must recognize that the procurement problems discussed today is only a part of a very large and complex system. Defense procurement regulations and procedures are highly complex. I plan to look at the need for this complexity in my audits of the procurement process itself.

I believe the Secretary of Defense has demonstrated that he is concerned and serious about reducing the prices for spare parts and the actions he has initiated are designed to achieve results. I plan to continue and expand my efforts to fully support the Secretary in this endeavor, and to look over the entire spare parts' situation.

That concludes my statement, and I would be glad to take any questions.

[The prepared statement of Mr. Sherick follows:]

PREPARED STATEMENT OF HON. JOSEPH H. SHERICK

INSPECTOR GENERAL

DEPARTMENT OF DEFENSE

Mr. Chairman and members of the Committee:

I am pleased to testify today on the procurement of spare parts by the Department of Defense. DoD spends billions of dollars annually to procure millions of spare parts. There are about 30,000 separate aircraft engine spare parts alone. So we are talking about an important aspect of our defense program.

As has been widely reported, the Department has paid high and in some cases exorbitant prices for certain spare parts. You are all aware of the horror stories, such as the diode that cost 4 cents through our supply system but we paid $110 to a contractor and the switch that should have cost about $15 but we paid over $200. There is no doubt that something is wrong here. I do not think these are just random mistakes that occur in any major procurement as some suppliers would have us believe. Neither are they rampant throughout the system.

The reports bearing on spare parts issued by Defense IG and Service auditors are the basis for much of the attention of the media and of the Congress. The media has not adequately reported that the Department of Defense is itself uncovering and addressing these problems. In fact, improving the procurement process has always been a high priority of this Administration and Secretary Weinberger. I believe good progress has been and will continue to be made.

For my part, I will continue to audit purchases of spare parts. My auditors are currently examining six different aspects of the problem and will begin four additional audits in the next six months.

One of my current reports, still in draft, covers aircraft engine spare parts. This is the draft report that received so much recent publicity. Premature release of the draft was unfortunate because it contained some highly summarized data that had not undergone critical review for factual accuracy. After its release we discovered that one table contains errors regarding the extent of the problem. These errors, however, did not negate the existence of the basic problem of unexplainable price increases identified in the report. Also, to the best of our knowledge, the individual examples and all other statistics cited in the rest of the report are accurate.

I should point out that in each of our reports, we will provide information on the price changes of the entire sample. We expect to identify the percent of prices that went up, went down and remained unchanged.

I think it is clear that DoD has a problem in the way we buy certain spare parts. I see my job as one of sampling each major area of DoD operations, highlighting the problems if they exist, stimulating corrective actions and moving on to the next area. We have a lot of dedicated hardworking people trying to make our system work. We must do our best to make it workable.

DoD's own audits have identified various situations that contributed to our problem. For example: inadequate technical data that unnecessarily constrains competitive procurement actions; cases where DoD had adequate technical data but failed to seek competitive procurement because it was easier, quicker and less risky to buy sole source; parts bought at high prices from end item manufacturers even though the same parts were available in the Federal Supply System at substantially lower cost; and the "clericalization" of the procurement process. By this last point I mean that buyers were sometimes unable to determine if prices for spare parts were reasonable because they were unfamiliar with the item and couldn't compare price with item complexity.

On the plus side, our audits show that the Department has done many things right. For example, in May 1983, we issued two quick reaction reports criticizing the Navy for not obtaining spare parts through the Federal Supply System.

In an attempt to determine how widespread the problem was, we expanded the scope of the audit to include the other Services. We found that the Army and the Air Force were obtaining items with National Stock Numbers through the Federal Supply System when it was advantageous to do so. We also found that the Navy had in fact used the supply system for another of its programs. We are now doing additional analyses of two Navy programs, AV-8B and TRIDENT, and plan to issue a draft report shortly.

Let me now turn to what I believe are some of the causes of the problems. I believe the problems are related to the way the Department conducts its business and to questionable pricing practices by some of our suppliers.

o In the past, we have not made all of our procurement and inventory management personnel sufficiently price conscious. Attention has focused on ordering the spares and getting them delivered quickly to maintain readiness without sufficiently considering the reasonableness of cost.

o Procurement personnel often go through a clerical process giving little thought to price comparison with previous buys and, therefore, to what the items should cost.

o Some basic ordering agreements allow contractors to set or "redetermine" the price at time of delivery, which may be long after an order was placed. This can allow the contractor to negotiate price based on actual cost incurred, thus removing contractor risk and the incentive to control costs in the marketplace. Frequently, the final price is many times greater than the price originally quoted.

o Some supply and procurement officials have been reluctant to seek competition because it is deemed faster, easier, and safer for them to buy sole source. Supply and procurement officials often feel comfortable when they buy the spares from the end item manufacturers. If a critical item fails, the end item manufacturer must be at fault. However, if a procurement official decided to obtain the part from some other contractor, his judgement can be questioned.

o DoD has not made adequate system reviews of contractors' operations. Far too frequently contractors from whom DoD purchases spare parts do not manufacture the items. Rather, they purchase the item from another company, who may have purchased the item from yet another company and so on. Each contractor adds handling costs, plus overhead and profit to the price.

o Finally, we have found that the true extent to which DoD obtains competition on its spare parts procurements has been obscured. Procurements identified as competitive may not have been competitive because of competition between the prime and his vendor or licensee.

There are no easy solutions to these problems. We have to change attitudes and let both the responsible Government officials and the contractors know that it is no longer business as usual.

One of the early priorities of Secretary Weinberger was the examination of the DoD procurement process. This led, in 1981, to the 32 initiatives designed to improve the way the Department does business. When the Secretary became aware of the recent problems in spare parts procurement, he announced major changes in the way DoD orders and purchases spare parts. The actions he outlined include:

o Establishing incentives to increase competitive bidding and rewarding employees who vigorously pursue cost savings.

o Taking disciplinary action against employees who are derelict in their duties.

o Alerting Defense contractors to the seriousness of the problem and asking them to pursue fair pricing practices and reward or discipline their employees where appropriate.

o Relying upon the competition advocates in the Services to challenge orders that are not competitively placed or appear to be excessively priced.

o Refusing to pay unjustified price increases.

o Accelerating reforms on the use of basic ordering agreements.

o Obtaining refunds where contractors have overcharged including suing the contractor to recover unjustified payments.

o When alternative sources of supply are available, ceasing to do business with contractors who are guilty of unjustified and excessive pricing and who refuse to refund improper charges.

o Continuing audits and investigations of spare parts.

Mr. Chairman, I think we must recognize that the procurement problems discussed today represent only a small part of a very large and complex system. DoD processes millions of contractual actions each year, manages millions of line items in its inventory, and spends billions of dollars for spares annually. Defense procurement regulations and procedures are highly complex. We plan to look at the need for this complexity in our audits of the procurement process itself. But for now we must relentlessly identify and correct systemic weaknesses and unnecessary complexity as we identify them in our item audits. We must also identify and place responsibility for lack of appropriate management emphasis on costs.

I believe that the Secretary of Defense has demonstrated that he is serious about reducing the prices for spare parts and the actions he has initiated are designed to achieve results. I plan to continue and expand my efforts to fully support the Secretary.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions you may have.

SOLE-SOURCE CONTRACTING

Senator RUDMAN [presiding]. Mr. Sherick, thank you very much for your statement. I expect the chairman will return momentarily, at which point I will yield back to him. In the meantime, let me just get into a couple of areas that the committee is interested in.

The GAO estimate is that about 37 percent of all DOD contracts awarded in 1982 were selected competitively. Based on a sampling prepared by your office, about 61 percent of all spare parts were procured on a sole-source contract. How significant is this particular statistic in terms of the overpricing that we believe exists in spare parts' procurement? Especially in light of the fact that every time that we look at competitive buys we generally see enough price pressure to have a downward trend?

Mr. SHERICK. I feel very strongly that the sole-source type environment has a real impact on the price you pay. By making these items proprietary to a specific supplier, you immediately freeze out of the bidding process many of the people who are in fact subcontractors to these very suppliers.

Senator RUDMAN. Well, do you see any moves other than those that are contained in Secretary Weinberger's guidelines that the services are taking themselves, to get the problem solved quickly?

Mr. SHERICK. Yes. There is evidence that the services have been addressing this problem for the last several years.

The Navy, for instance on one aircraft engine, actually went into that whole problem. They determined that they could break out—at least from that procurement—many of the spare parts that were involved. In fact they did break them out.

Unfortunately, they did not continue that process to other items and engines. The reason they gave us was that because of travel funding restrictions and personnel problems they were not able to do it. But I think we know that competition certainly is the answer. Deputy Secretary Carlucci in this room discussed his procurement improvement initiatives and I think Senator Proxmire was the individual who added the 30-second initiative, which was competition. We certainly know that the way to get prices down is to get competition. The way to get competition is to get the data, the procurement data, the drawings, the engineering notes, et cetera, that make it possible for other people to bid and supply it.

OVERPRICING

Senator RUDMAN. Well, you did some investigating on your own recently and found some extraordinary cases of overpricing. A couple of the cases that you found were; stool caps at $1,100 each, claw hammers at $400 each etc. . . . Could you just tell us how that happens? Coming from a private-sector environment, I do not understand how that happens. It seems as though somebody has got to be asleep at the switch.

Mr. SHERICK. Well, there is no question that somebody is asleep at the switch. When you talk about things like sledge hammers, claw hammers, 12-foot tapes, things like that, anyone looking at the nomenclature and looking at the price knows that this is wrong.

Unfortunately, I think much of our procurement has gotten itself involved in a computer-type operation where you see a stock number that is 18-digits long, and a price that is attached to it, and people do not relate that stock number to a sledge hammer or a 12-foot measuring tape.

Senator RUDMAN. Well, who purchased the $400 claw hammer? I have not read your support. So I do not know which service that was.

Mr. SHERICK. It was the Navy buying spare parts and other equipment on a training contract, where they just let the contractor supply everything and did not bother to run it through their own supply system. If there is one thing that we do have, it is probably hammers.

Senator RUDMAN. Well, assuming that we do——

Mr. SHERICK. That is what I mean when I talk about the clericalization of the process. But we have witnesses here today that can answer that question a lot better than I can.

RETURNING COMMONSENSE TO PROCUREMENT PRACTICES

Senator RUDMAN. I am sure we intend to ask that question. We tend to deal with many of the subjects that we are involved in broadly stated philosophical principles and highly complex operational directives of part of DOD's procurement practices. I wonder whether or not they are designed to make them susceptible of not

being able to be understood? Yet, when you come down to something this simple, someone in your position must see so much of this that you must have some ideas of how we could simplify this kind of mistake with just plain application of commonsense.

I mean, if computer technology has got us to the point where we are paying $400 for claw hammers and several hundred dollars for diodes, and all of the other horror stories, that we hear of, it seems to me we are interested in finding out how to get some common sense into the system.

In plain language, Mr. Sherick, how do you do that?

Mr. SHERICK. Well, one of the things you have to do is to put some people back in the system. I think that is one of the things we have not done. We have continued to lose, in my estimation, the involvement of individuals. We have so withdrawn people from the forward edge of our requirements' determination and our actual procurement that we have pretty much let the computer take over.

For instance, before Oklahoma City did away with the use of the basic ordering agreement, they had one clerk running the process. It took nine people to put the human element back into that buying system.

But as I say, I am sure that Admiral Grinstead and others here who are in this business every day could probably give you other answers. But that is my own opinion: Nobody is going to sit there and eyeball parts if there is not an individual to do the eyeballing.

FIXED PRICE REDETERMINABLE BASIC ORDERING AGREEMENT

Senator RUDMAN. Going from the general to the specific, some of your auditors have been examining the practice of using what is referred to as "fixed price redeterminable basic ordering agreements."

Mr. SHERICK. Right.

Senator RUDMAN. That is a fairly involved phrase. I wonder if you might describe what that means in practical terms, and what the problems are in terms of its utility?

Mr. SHERICK. Well, the basic ordering agreement is probably a good idea. The contractor who makes the end item puts out a catalog and says that he will provide spare parts for the end item at these prices. As items are required, Government people order against that catalog price and traditionally would try to negotiate a lower price for high quantity procurements. In the redeterminable pricing, the idea is that you order at the catalog price, but then when the contractor delivers the price is based on the current catalog price. This type of procurement makes it easy to order.

You know, as I look at the situation, I see this happening but I do not see any tough renegotiation at the end.

Senator RUDMAN. So what you are saying is that this is a fixed-price agreement?

Mr. SHERICK. It is not, really. It is a cost-plus with no ceiling.

Senator RUDMAN. I mean, that is what it is called. It is a wonder euphemism, but that is what it is called. You can call an "apple" an "orange," but it is still an apple.

Mr. SHERICK. Yes. I am sure you can make it work. The question is, you have to have toughness on both ends. You have to have the

negotiator on the Government side arguing price at both the initial point and when the price is redetermined. I have not seen evidence of that happening.

Senator RUDMAN. Do you see evidence of processes at work now in the Department that are going to make that happen?

Mr. SHERICK. Oh, absolutely.

Senator RUDMAN. You do?

Mr. SHERICK. Yes. For instance, we have done way with the redeterminable pricing at Oklahoma City, and we are examining it all over to hopefully do away with it, or make it the tough tool of negotiation that it is supposed to be.

Senator RUDMAN. That is a fairly recent development, is it not?

Mr. SHERICK. Well, it is recent, but it has been around for awhile. As I say, the procurement witnesses can probably give you the history of it.

EFFECT ON CONTRACTORS FROM UNCOVERING OVERCHARGES

Senator RUDMAN. I want to go from that, to looking now at the contractors out there. According to several of the service secretaries, certainly Secretary Lehmann of the Navy has made it quite clear that he intends to pursue some of these overcharges. What is going to happen to these contractors, other than simply refunding money?

I ask the question for this reason, Mr. Sherick: Although the Services may not have the systems yet in place to recognize that a number that is 13 digits long actually represents something that is worth $20 and it is being bought at $400 such as a claw hammer, yet I would be willing to bet that the guy who is administering that contract for the contractor knows full well that he is getting $400 for something that is probably worth one-tenth of that.

In my opinion I think that borders on fraud and I want to know what you think about that, because that is your area at the Pentagon.

Mr. SHERICK. There is no question in my mind that that guy knows that he is charging us $400 for a sledge hammer. When you talk to them and ask them why does that happen—at least the correspondence and the conversations I have had, they always center around, well, what we lose on the peanuts we make on the crackerjack. It is that approach to life that we have to deal with, the companies claim that they have engineering staffs that they have to support; they have other overhead that they have to support; and the Government is going to pay it either on the major item or on the spares. Their accounting system is such that they distribute the overhead cost across the board, and that is how they end up charging $400 for a sledge hammer.

These are the explanations that I get. They just do not wash. I personally feel that if that is their accounting system, I do not think that it is a very good one.

LEGAL ACTION AGAINST CONTRACTORS

Senator RUDMAN. Before yielding to my colleague from New York, let me just ask you this: Because you are involved in a number of areas of enforcement, what do you think the likelihood

is, in some of these extraordinary cases, that if the U.S. attorney convened a grand jury and subpenaed witnesses from those contractors and put them before the grand jury under compulsion of perjury, and found out how these prices were arrived at, whether or not you might not in fact get some criminal indictments?

Mr. SHERICK. That is possible.

Senator RUDMAN. Well, I truly think you ought to look at it, Mr. Sherick.

Mr. SHERICK. We have, as you know, the DOD/DOJ fraud procurement task force. I certainly can talk to the head of that group and we will look at that aspect of the problem.

Senator RUDMAN. Frankly, looking at these numbers and knowing something about the Defense Procurement Regulations, with all due respect to what accountants can do with numbers, I think that some of these figures are so extraordinary. I can understand the services with the complexity of the procurement, and the inventory control, and the computers not understanding what was happening with an item—I know that can happen. But I do not understand someone in the business community who is dealing in good faith with the military, charging the kind of prices that they have been charging without bordering on fraud.

One of the best ways to get a practice stopped is to elevate the penalty price that you pay if you get caught at the practice. So I would like to see the Inspector General's Office of the Department of Defense do something about the penalty and see whether or not we can teach some of these contractors a lesson. I think we need some examples out there.

Senator D'Amato.

FRAUDULENT ACTIVITIES OF CONTRACTORS

Senator D'AMATO. Thank you very much, Mr. Chairman.

Let me say that Senator Rudman is absolutely correct. That firm that did that is from Long Island. They charged $400 for claw hammers. Maybe we are guilty of picking the most sensational area out, but I do not think so. This area is replete with horror story after horror story. This is not just an isolated example. I think we should consider going after that contractor, as well. If he has not abused the public trust, and if he has not committed fraud, then what do we need to make a case of fraud?

I think we should pursue it. I think we should prosecute him. If we do, I think that we are going to have the contractors who are doing business with us not looking to take us for a ride. They had better know that if they are going to engage in conduct which is nothing more than theft, that they are going to pay the price. We are going to prosecute them.

Mr. SHERICK. I have no problem at all with examining into that, and especially if there is defective pricing. We certainly have them for a false certification.

Mr. D'AMATO. Good.

Mr. Chairman, let me say that Joe Sherick has done, and his office of the Inspector General has done an outstanding job. They are refreshing; they are candid; they respond. The best investment we made was to give them additional personnel. In terms of some

of the reports that you have made to us for example, the BH Aircraft incident where we caught them ripping off millions and millions of dollars, was just another example of you setting a standard of quality that should be pursued.

FAILURE OF DCAA

I will make the statement here that I am deeply, deeply troubled by the Defense Contract Audit Agency, starting right up at the top. They have failed the system. They have failed this country. They have failed a strong defense. They have put us in a position whereby we can rightfully be criticized as a result of the waste, fraud, and abuse that they have almost countenanced.

Let me indicate what really troubles me. This report, April 19, 1983, from the U.S. Merit System Protection Board—thank God we have them—where they stepped in, singlehandedly, and kept a good American, a good employee, George Spanton, who is a senior auditor with the Defense Contract Audit Agency from being victimized. That is exactly what was taking place. They were trying to get him to retire.

If you read this report by that Board, they were trying to shift him out. They were trying to stop him, as we would say in plain English, they were trying to gag him, get rid of him.

Who is this guy to rock the boat? I want to tell you something. This report indicates very clearly that the four officials responsible started right at the top: Charles O. Starrett, Jr., the Director of the DCAA. He should be out, out. If he is the Director, we are in deep trouble, Mr. Chairman. James R. Brown, DCAA Deputy Director; Paul Evans, manager, Atlanta Region; Arlan R. Tuller, audit manager, Atlanta Region. All of them were involved in attempting to stop this man from carrying on his duties and harassing him. They should be ashamed of themselves. They should have given Spanton a medal and said, my God, what a wonderful thing, and pursued the information he uncovered.

Instead, what did they attempt to do? They literally persecuted him. Now, that is the wrong kind of thing to do. I sent a letter to Secretary Weinberger—and I commend the Secretary for saying, look, we have got to start new standards. We have got to look at this. This has been going on for years.

This is not something new. This is the "old boy" network. Do not rock the boat, because we want to keep these cozy relationships. Well, if the DCAA, the Defense Contract Audit Agency, who is responsible for audits of defense contractors, if they are involved in this kind of situation, I think it is terrible and does a terrible disservice to this Nation.

I would hope that these gentlemen would take a leave of absence. I have suggested that to Secretary Weinberger. They have got an accounting to make to the American public. Now this may seem harsh, but I think that their conduct has demonstrated, as testified to in this report, that the watchdogs' teeth have indeed been pulled, and maybe the watchdog is part and parcel of the problem. I think they are. I think they have failed miserably. Were it not for your efforts, and for some courageous people, and for some journal-

ists who put the focus on truth, this situation would just continue to go on.

EFFECTIVENESS OF DCAA

Let me ask you something. How do we get the DCAA to become move effective?

Mr. SHERICK. Well, as you know, DCAA does not work for me. They work for the Comptroller.

Senator D'AMATO. I would like them to work for you. How about that? Suppose we put them under you?

Mr. SHERICK. That issue has been argued long and hard for the last several years in the Congress; on about four different occasions Congress decided that they did not belong under me, and I have accepted that.

I really do not need those personnel problems. [Laughter.]

Senator D'AMATO. Well, we are going to get rid of the four biggest problems, and you could start right up there.

IG RESPONSIBILITY IN CONTRACT AREA

Mr. SHERICK. Well, when Congress established the IG's Office, they gave me, if you will remember, 100 auditors that will go into the contract area.

I think one of the biggest problems we have had was that auditors have not looked at prices, because of an artificial break between the internal auditors and our contract auditors. I think Congress realized that when they gave me 100 auditors that can go from the beginning to the end, right into contractors' plants, et cetera.

I think they also understood the problem when they gave the IG the subpena authority for contractors' records. I know DCAA has many problems with access to records. I do not expect to have those problems. In fact, where DCAA feels that they need my subpena authority, I have agreed to take over whatever investigations that they feel require that and they do not have access to records.

I just cannot comment on the specific problems you raise. DCAA is a big organization. They do a good job, at least from my evaluation of it. I think the ability for me to go all the way in is very important, and I intend to do that.

To go back to the issue on Mr. Spanton, I have not looked at these personnel matters because the Merit System Protection Board has them now. It would not be appropriate for me to get involved—I do have my oversight people looking at DCAA.

Senator D'AMATO. Are you examining this particular incident with Mr. Spanton?

Mr. SHERICK. We are not because the Merit System Protection Board is examining it. But we are examining those areas throughout DCAA to see if the conditions that appear to have existed at West Palm Beach are a problem in other parts of DCAA.

So we are looking at that. In fact, my investigation is currently underway.

RESPONSIBILITY OF TOP PERSONNEL AT DCAA

Senator D'AMATO. Mr. Chairman, I would just like to make one observation—and maybe have the direction of this committee—that I just think that this Spanton matter, because it goes right to the top four people in DCAA, because of what they did, if this report is accurate, then they should be absolutely out. In my opinion, they have no business heading DCAA.

I think the Merit System Protection Board is finished with that particular matter and there would not be a usurpation of their jurisdiction as it relates to that particular case.

Mr. SHERICK. No, they are not. I have been in very close contact with Bill O'Connor, who is their special counsel. He is still determining what action he is going to take. There is no question about that.

Senator D'AMATO. My thought would have been to have you, then, review this matter with respect to them. I have called this case to the attention of the Secretary with regard to those four individuals, because I think that they should be on leave of absence with pay until we get to the bottom of this. They account to the American public as to why they persisted in this if this report is accurate—and I could not think why it would not be—simple harassment of Spanton and attempts to put him out to pasture, to terminate his legitimate exercise of his authority in this area.

Let me commend you and the Inspector General's Office and your people for undertaking a real job and being so very cooperative.

Mr. SHERICK. Thank you.

ITEM NOMENCLATURE

Senator STEVENS [presiding]. Mr. Sherick, we have got a little cartoon here that says: "To us, this is a pencil," I am sure you have seen it, but "as a spare part, it is a portable hand-held communication inscriber." [Laughter.]

Now I am not being facetious when I ask, is part of the problem the nomenclature that is used for parts as we change contracts?

Mr. SHERICK. Yes; I think that the problem has a lot to do with the nomenclature and the way we identify items.

Senator STEVENS. Well, is that not fraud? That is my real question. Is it not fraud to have sold one item under one contract and call it a pencil, and in another contract call it a portable inscriber? Would not the same thing apply to those nuts and bolts that we hear about in the cause celebre?

Mr. SHERICK. I think if it is fraud, we commit it on ourselves. I think we name and identify the items, but again the witnesses coming behind me know it a lot better than I.

Senator STEVENS. From your position as Inspector General, though, is what I am talking about. If you identify those, would you treat them as fraud?

Mr. SHERICK. Well, I do not know. I would have to look at each instance. But certainly if it was done intentionally to in some way defraud the U.S. Government, I certainly would treat it as fraud. It would be hard to prove, but I would certainly try.

SUPPORT COST DISTRIBUTION

Senator STEVENS. Well, in part of our preparation for this hearing, we did talk to and received information from some of the industry. One member of the industry told us that it is a method used, the methodology of distributing support costs. They said that there is an equal allocation method, or there is a percent allocation method. If you take the total support costs and divide them equally among all parts, or whether you divide the support costs on the basis of the percentage of the costs of the particular part to the total cost of all parts, the support cost is the same.

Now have you looked into that? Is that within the procurement system a defense for what we see when we see such heavy support costs identified? They used the example of a $15 part, a $300 part, a $3,000 part; if you have $1,200 in support costs, you could put $400 on each part. Or you could take the same amount, the $1,200, in terms of the support costs and allocate them, $12 to the $15 part, $108 to the $300 part, $1,080 to the $3,000 part, and still have the same $1,200 support costs allocated among the spare parts that were covered by the contracts for that particular supplier.

Now have you examined that to see if that actually is the case?

Mr. SHERICK. Right now we are out in contractors' plants looking at the way they allocate costs, because these are the ways they have explained it to us. My comment back to them was that I did not think too much of that accounting system. But we are out now looking at that.

Senator STEVENS. Well, the problem with that system is that it would seem that if a supplier used that system on one part, it would have to use that system for all parts.

Mr. SHERICK. Well, that is the argument that they give you, that they are underpricing as many parts as they are overpricing.

Senator STEVENS. They do not say that it is the parts, that the problem is the cost of the parts themselves; they say the problem is the support costs, overhead.

Mr. SHERICK. No, it is the distribution of overhead and support costs. All I can say is I do not think that is a very good accounting system because of the perception it gives you. When they use that approach to accounting, how do they know that we are not going to go out and compete the item? And what are they going to do with that overhead that they have allocated to parts that we will never purchase? They will just move it right back on the main item. So I just do not see it.

I understand the explanation; I just do not buy it.

Senator STEVENS. Well, why should a prime contractor be able to allocate any portion of the overhead costs of its system to a spare part that is provided by a subcontractor when the prime contractor procures that part and does not perform any support costs for it?

PYRAMIDING SUPPORT COSTS

In other words, are we pyramiding support costs under this allocation system?

Mr. SHERICK. Yes, I think we are. But we must remember that DCAA goes in, and the military departments certify the contractor's accounting systems. That means that somebody has already

approved that accounting system and has gone along with that kind of distribution of costs. I do not necessarily think that it is the contractors' problem. It certainly does not seem to be a very good accounting system to me. But I would suggest that you talk to the military service people who are here concerning how these accounting systems are approved.

Senator STEVENS. Well, you mentioned the Federal supply system and that it appeared that the taxpayer is getting a better deal when the spare parts were acquired through the Federal supply system.

Mr. SHERICK. Yes. That is if the items are in the Federal supply system. We have many, many items that are common to more than one weapons system, and consequently the Defense Logistics Agency buys and stocks them for all users.

What we propose is, where a contractor is providing spares for a new weapons system, or a different weapons system, that the basic procurement agency have the contractor screen the requirements thrugh the Federal supply system. And if there are claw hammers already in the Federal supply system, order them directly from DLA who buys thousands of claw hammers, instead of letting some contractor go out and buy claw hammers and apply all their overhead to it.

Senator STEVENS. Senator Proxmire.

Senator PROXMIRE. Thank you, Mr. Chairman.

Mr. Sherick, first I want to thank you very much for your reference to the fact that we asked Mr. Carlucci why his 31 initiatives for reducing costs did not include competition, and that now he has added competition. We appreciate that very, very much.

Mr. SHERICK. Thank you.

PROFITS TO FIRMS FROM OVERCHARGING

Senator PROXMIRE. Can you tell us, Mr. Sherick, in your judgment, have the overcharges that have been uncovered increased the profits of the firms doing the overcharging?

Mr. SHERICK. I cannot say that categorically. I have not been able to prove that, because we have not been into the contractors' books. But certainly there is that possibility.

Senator PROXMIRE. It seems to me that this is about the dumbest kind of a ripoff. If I were a defense contractor and I wanted to increase my profits, I cannot think of anything stupider than to charge $100 for something that cost 49 cents. It is so likely to be exposed, and when it is the public understands that completely, and it tends to discredit the Defense Department; it tends to discredit the defense contractor. It seems to me that this is indicative of something that may be far more pervasive and far more important to other kinds of cost hiking and excessive profits that we do not know about.

The difficulty is that we are increasing our procurement rapidly. We have dropped the Renegotiation Board. The Vincent-Tramell provisions that limited profits have been repealed. There are no reports on profits. You cannot seem to tell what the Defense profits are.

Admiral Rickover has now departed. He was the big scourge of the profiteers. On April 12, 1983, the GAO released a review of the allegations made by Admiral Rickover concerning excessive profits made by defense contractors. The study found that the profit figures cited by Admiral Rickover were essentially correct, accurate. That is what they said.

What, if anything, has been done in the wake of the Rickover allegations and the GAO review of the figures on which they were based?

Mr. SHERICK. I cannot really answer that. I know that Deputy Secretary Thayer has been charged by Secretary Weinberger to look into the whole area.

Going back to your original point, I think that the chief executive officers of these defense suppliers agree with you that charging that kind of money for a sledge hammer or a diode is stupid, and they are embarrassed by it. I am sure that there are going to be a lot of changes out in the system to prevent that from happening again.

Concerning the excess profits, I have not really been involved in that. I do know that the Deputy Secretary, and Dr. DeLauer, and others are very much involved in it.

Senator STEVENS. Senator, I hate to interrupt, but I would like to urge all committee members to keep in mind that this was a scheduled hearing on spare parts management and pricing policy, not on total procurement. I hope that you will recognize that.

Senator PROXMIRE. Oh, I recognize that, Mr. Chairman. I hope you will permit me to proceed with this line of questioning, because I think that it is very closely related to excessive profits. I would like to, unless the chairman is going to rule me out of order, proceed by asking questions along that line because I feel that we have not had an opportunity to question that way. So I will just use my 10 minutes in doing that. I hope it does not offend my good friend, the chairman. He has been very tolerant in the past.

Senator STEVENS. It is not offensive. I just hope we can keep on the question of spare parts management pricing and not on total procurement. That is the problem we are dealing with today.

DEFINITION OF EXCESSIVE PROFITS

Senator PROXMIRE. Well, in connection with spare parts and excessive profits, let me ask—[Laughter.]

A problem illustrated by this GAO study was the determination of what constituted excessive profits. The GAO advised that they could not render an opinion whether excessive profits had been made in any individual case since there are no generally accepted criteria as to what constitutes excessive profits.

How does the DOD determine what level of profits is reasonable or excessive? Or do they even attempt to determine that?

Mr. SHERICK. Well, as you know, several years ago there was a profit study made by the Department of Defense, and they did lay out in that study what they thought was a fair profit. At that time, they were concerned about people making profits.

I think the problem really then was that Defense procurements were low, the quantities we were buying were small, and there

were a lot of people at that point not interested in Defense business. But there was a profits study, and I am sure that some of the witnesses here from the procurement management elements can certainly talk to you about that.

PROVISIONS TO LIMIT DEFENSE PROFITS

Senator PROXMIRE. As I indicated earlier—and I will not go through the whole list, the Renegotiation Board and so forth—what provisions are now in place to limit the Defense profits? Any?

Mr. SHERICK. I do not know of any.

Senator PROXMIRE. None?

Mr. SHERICK. Except negotiations.

Senator PROXMIRE. The Renegotiations Board showed that in some cases there were 1,000-percent profits, in which case they were able through renegotiations to get back some of those profits for the Federal Government. Now there is no protection whatsoever. Is that right?

Mr. SHERICK. As I say, I think it is in the negotiation process. I just run a small church out in the country. You have to talk to the people from the diocese. I really haven't been involved in that.

Senator PROXMIRE. Well, you run your church very, very well. I think you have been very accommodating and very cooperative and helpful to me when you have talked to me, as you have with other Senators, I am sure.

Does it not seem to you that we ought to have some understanding of what profits are?

Mr. SHERICK. Yes, sir.

Senator PROXMIRE. Are you steering into this area without any notion? This relates to the earlier point that you made, that competition has been added as an afterthought. If we have competition, advertised competitive bidding, then it seems to me that we can more or less forget about the profits. They discipline themselves. You have people coming in, if profits are excessive; the competitors come along. But so much of our procurement is negotiated, and often with a sole source. It seems to me that we should be very, very concerned about those profits. Is that not right?

Mr. SHERICK. Absolutely. And again I think we have made it clear that we think we certainly need contractors. I do not think the Department of Defense could run one day without contractors. We need contractors, and we need them to make a fair profit. I certainly think we should know what a fair profit is.

Senator PROXMIRE. In your testimony you say—and I only have a minute left—the bottom of the first page, "I do not think these are random mistakes that occur in any major procurement, as some suppliers would have us believe."

What is the dollar magnitude of the problem?

Mr. SHERICK. Well, first I have to say that we were really only looking at the aircraft spares. We are going into electronics. We are going into all the other spares. We have examined and looked at 30,000 items and we have found that about 15 percent of them were seriously overpriced.

Senator PROXMIRE. Let me ask one more question, if the chairman will permit.

DOLLAR SAVINGS

On page two you say, "I believe good progress has been and will continue to be made." What are the total dollar savings to date?

Mr. SHERICK. I do not have a total, but on two items promised from BH Aircraft the savings approached some $9 million on one item, and $2 million on another. So there is big money to be saved.

Senator PROXMIRE. Would you pull together some estimate as to what savings there have been to date?

Mr. SHERICK. Certainly.

Senator PROXMIRE. Thank you.

Thank you, Mr. Chairman

[The information follows:]

REPORTS ON SPARE PARTS ISSUES

In the last 2½ years, the Inspector General organization issued eight final reports that related to spare parts issues. These reports discussed various aspects of the spare parts management process including the use of reclamation as a potential source of spare parts, duplicate management of items by the Services, the extent of competition in spares procurements, the adequacy of technical data for competitive procurements and overpayments for spare parts. In these eight reports we estimated that savings of about $26 million could be achieved through improved management. We currently have six audits in process that will include spare parts management issues and plan to begin four additional audits of spares in the near future. It is not possible to estimate the extent of savings that may result from these audits at this time. We are certain, however, it will be in the millions of dollars.

HEARING PROCEDURE

Senator STEVENS. Thank you.

We will continue, gentlemen, on this first round at 10 minutes. We have seven other witnesses in the next round, so we will make it 5 minutes; if that is agreeable.

Senator Weicker.

Senator WEICKER. Thank you, Mr. Chairman.

INVESTIGATIONS

Just two questions. No. 1, exactly what is ongoing at the present time in the way of investigations?

Mr. SHERICK. Yes; I can put them in the record for you. We have done eight audits.

[The information follows:]

SPARE PARTS REPORTS

Since October 1, 1982 the GAO has issued the following final reports on "spare parts."

"Improving the Air Force Modification Process Will Benefit Management of Spare Parts in the Air Force and Defense Logistics Agency" (GAO/PLRD-83-3, October 15, 1982)

"Combined Procurement of Spare Parts and Production Components Will Reduce Defense Weapons System Costs" (GAO/PLRD-83-17, December 15, 1982)

"Poor Procurement Practices Resulted in Unnecessary Costs in Procuring M1 Tank Spares" (GAO/PLRD-83-21, January 18, 1983)

"Continuous Improvements needed in Air Force Procedures and Practices for Identifying and Cancelling Excess On-order Stocks" (GAO/PLRD-83-36, February 7, 1983)

"AF BREAKOUT EFFORTS ARE Ineffective" (GAO/PLRD-83-83, June 1, 1983)

"Air Force Uses Inaccurate Production Leadtime to Compute Spare Parts Requirements" (GAO/PLRD-83-85, June 16, 1983)

"Improved Processes Can Reduce Requirements for Air Force War Reserve Spare Parts" (GAO/PLRD-83-81, July 8, 1983)

AUDITS

Senator WEICKER. Now when you say "we," I would like to have——

Mr. SHERICK. The IG.

Senator WEICKER. I understand that. I am interested in that, and then your overview as to all investigations ongoing.

Mr. SHERICK. OK. We have eight audits. We have completed eight audits. We have six more currently underway, and another four planned in the next 6 months.

The military service auditors have completed, in the last 2 years, about 25 audits, and have 2 audits in process and an additional 5 audits planned in fiscal year 1984.

Senator WEICKER. These are the various services?

Mr. SHERICK. That is right.

INVESTIGATIONS BY FBI

Senator WEICKER. All right. And what is ongoing vis-a-vis either the FBI or the Justice Department?

Mr. SHERICK. The FBI has two investigations, and the U.S. attorney has one in Palm Beach, and one in Hartford. Those are the ones I know about. My investigators have three or four additional investigations underway. I do not know what the FBI may have in addition to that.

Senator WEICKER. The GAO?

Mr. SHERICK. The GAO has issued reports on spares. I do not know exactly what they are doing. I can provide information on GAO final reports for the record.

Senator WEICKER. How is it possible, then, to really arrive at any effective resolution of this problem until we have all the facts at hand?

Mr. SHERICK. Well, I think that the real big problem of lack of competition just jumps right out at you. You just have to put the pressure on the people. I am convinced that our buyers, our contracting officers, et cetera, can do whatever management tells them to do. They are good and very competent people.

The problem is that in many cases they are harassed. They are harassed in terms of "we need it today." "Get it for us right away." They do not have enough people in many cases to do the job that has to be done out there. The human element has dropped out of it. They are under pressures from the program managers for speed; they are under pressures from the contractors in terms of "if you want it, you better buy it now"; and I think they have a relatively thankless job, and we have to support them by laying out the groundrules so that they can turn around and say: You may need it today, but, by God, we have to buy it at a good price, and the Secretary of Defense supports that. So you may have to wait or work around it.

I think that is what we have to do: Isolate them from a lot of the pressures they are under.

Senator WEICKER. Would one of those pressures be political pressures?

Mr. SHERICK. I have not seen any evidence of any political pressures by suppliers or others. There may be threats of political pressure, but I have not seen any.

OVERRUNS

Senator WEICKER. One last question. We keep on referring to the problem of spare parts, yet it seems to me that as that works itself into the weapons system, you really are possibly talking about the much larger problem of cost overruns.

Mr. SHERICK. Yes.

Senator WEICKER. It is not just "a" spare part at this end. Where does this all come out at?

Mr. SHERICK. I agree. And one of the things that I propose to do—and we are already starting—is look at the procurement process, the DSARC process, for the procurement of the major item. We are looking at the way decisions are made to buy, and then what happens as we buy the major item.

You know, if I were convinced that contractors were giving us the razor and charging us for the blades and making the money on the blades, I would say, "Well, that is one way of doing it." But I think from what I can see, we are paying plenty for the razor and we are paying plenty for the blades. That system just does not seem to balance.

As I say, I am hiring now my 100 acquisition auditors, and those are the kinds of things we are looking at.

PERSONNEL

Senator WEICKER. The last point. During the last several years all agencies of Government have been severely cut back in terms of personnel. Do you feel there are adequate personnel in the various agencies and services to monitor contracts?

Mr. SHERICK. In the procurement process? No; I do not think there are.

Senator WEICKER. There are not?

Mr. SHERICK. No, I think that they were cut back dramatically in the early 1970's, and I have not seen the people restored. Any yet, the number of spare parts that they are buying is going up dramatically. We started to improve readiness in 1980, and we are putting more and more money into that area. I have not seen the numbers of people go up anything like, in my estimation, they should go up.

Senator WEICKER. All right. Now that is the proper function of this committee. This is an appropriations committee. I would very much appreciate communication from you addressing yourself to this particular problem and any recommendations that you might have.

ASSISTANCE TO CONTRACTING OFFICERS

Mr. SHERICK. The other are that I might as well say is that there is also pressure to downgrade the contracting officers in terms of

what we pay them. They are out on the end of the line. They are the guys who make the deals, and there is a lot of pressure concerning their professionalism, the civil service grades that they get. And as I say, I think that for people who carry contracting officer warrants have been sort of roughly treated, if you will.

I think they need help. It does not make sense not to help. If we do not give them the help, the money is going to be spent, but it is going to go into price increases, as opposed to getting more spare parts. And that is the name of the game.

Readiness improves when we get the spare parts and get them in the hands of the troops. If people see us coming and take the money but we do not get the parts, that is a bad deal.

Senator WEICKER. Thank you very much, Mr. Sherick.

Thank you, Mr. Chairman.

Senator STEVENS. I want to follow up on what Senator Weicker says. All of the facilities of this subcommittee are available any time you think we can help you pursue any subject in terms of trying to bring about greater cost control on procurement of spare parts.

Senator Kasten.

Senator KASTEN. Thank you, Mr. Chairman.

First of all, I would like to thank you for being here. I am sure you feel a little bit like a dart board, but the fact is that you are doing the job and it just turns out that you have to be here at the other end of these questions. But it seems to me that you agree with what we are doing; that you are making steps in the right direction.

I think it is true that one of the things that the media has not pointed out is the fact that it is in many cases your office or other people within the Defense-Pentagon establishment, if you will, that have been able to find these problems and find the thing that costs 4 cents that has been charged more.

So I thank you for being here, and I also thank you for your patience. I am concerned that——

Mr. SHERICK. Could I make just one comment? I have to say that Secretary Weinberger, his support, to me, is just outstanding. I have a problem with his feet running up and down my back. Much of what I have gotten in to in spares and other matters is because he really demands that I get into it. So I do not want to take a lot of credit for this without acknowledging the tremendous support from the top of the Department of Defense. Without that support I could probably still be as ornery as I propose to be, but I certainly don't think I'd get as much attention from defense managers.

Senator KASTEN. Well, I am sure that is true. Unfortunately, that is not what is coming through.

Mr. SHERICK. I know, and that is so sad.

Senator KASTEN. And I believe, as a person that supports our national defense efforts, I believe that we are dangerously close to squandering our hard-won national consensus that we had in the early 1980's on the need for an adequate defense of our country. And we are going to squander it because of these procurement policies which you recognize are bad, we recognize are bad, and it just seems to me that we are in the process of losing that consensus

based on a ladder that costs $29 that we are paying $1,000 for, or whatever examples we choose to pick.

So we want to work with you to stop this in order to once more achieve the national consensus in support of defense that we have had, and I think we still have. But it is losing. We are about to lose it, and we are losing it on these kinds of items.

Now why cannot just plain old commonsense dictate to our procurement people that they are paying outrageous prices for these ordinary items?

I was not here in the beginning of your testimony. Are you saying that they do not know that number XYZ5012 is in fact a ladder?

Mr. SHERICK. Yes.

Senator KASTEN. They do not know what they are ordering?

Mr. SHERICK. I think there is a lot of that. But I have the procurement——

Senator KASTEN. Do you not have specialists? You have lots of different people in different departments; right? I mean, you do not have everyone ordering ladders?

Mr. SHERICK. That is right.

Senator KASTEN. You have a couple of people in one area ordering.

Mr. SHERICK. That is not the way it happened in this case. What we are showing you is where a weapons' system is ordered and the parts are for that weapons' system. They are part of the initial things that go with it. People are buying these kinds of things from the contractor. They don't bother to look at our supply system and find it there for a lower price than from the contractor.

Senator KASTEN. But even if he is not going back to his supply system—maybe we could solve the whole problem by putting a brief description next to the number. Is there no description next to the number?

Mr. SHERICK. Again, Admiral Grinstead will probably answer that question.

Senator KASTEN. At one point you just have to say: Wait a minute. How can be be paying that much money for this item?

Mr. SHERICK. I cannot believe that somebody out there looks at the nomenclature, see that and it says, 12 8-foot stepladders, $400, and agrees to buy it.

Senator KASTEN. But that in fact is happening?

Mr. SHERICK. In fact it happened.

Senator KASTEN. With the nomenclature there?

Mr. SHERICK. I do not know about the nomenclature, but I know the contractor went back in one case and said, "hey, you do not want me to supply this stuff; if I supply it, it is going to cost say $80,000. If you buy it out of your own supply system, it will cost say $3,000. And they in effect told the contractor to supply it."

Senator KASTEN. All right. Now in that case, in that kind of a case, are there examples where the contracting officer has lost his job because of a decision like that?

Mr. SHERICK. I do not really go around looking at the discipline, but I do know that both the Secretary of Defense and the Secretary of the Navy took a personal interest in the case I just described. There was disciplinary action taken.

Senator KASTEN. But is there an employee union or other kind of group that, in order to reprimand, or to fire, or to transfer someone you have to go through a number of kind of cumbersome personnel steps? Or do they have a relatively—in other words, can the Department of the Navy or the Secretary of Defense in fact move when he sees an error like the one you just described?

Mr. SHERICK. Yes; he can move.

Senator KASTEN. He can?

Mr. SHERICK. Yes.

Senator KASTEN. So his problems are not personnel problems. His problems are just whether he has got the courage to jump in there and fire that person.

Mr. SHERICK. If he knows. First, he as to know. And when he knows, he certainly has the courage. I am always trying to keep him from acting too promptly. He sometimes wants to do things before I have all the answers.

Senator KASTEN. I do not think that today it is possible for him to overreact.

Mr. SHERICK. I do not, either, but——

Senator KASTEN. I mean, this problem out there is so significant——

Mr. SHERICK [continuing]. We want to be fair. You know, you have to be fair. You cannot run around pulling wings off flies just because someone happens to be standing there. You know, he may not have had enough people or the system may be such that he does not have any choice. Those are the things that we have to examine. He may be as much a victim as the government is.

Senator KASTEN. Are there examples where people who have demonstrated—I understand Senator D'Amato talked about a whistleblower type that had been bumped around, or in fact had not been promoted. Are there examples where people who have been thoughtful, used commonsense, and saved a little money, have in fact gotten ahead?

Or is the way to get ahead in the contracting procurement business simply to get whatever it is as quickly as possible regardless of price? What is the fast track to higher salaries and power in the contracting business?

Mr. SHERICK. I think the rewards are there for a guy who is smart, and works hard, and is dedicated. I came out of the procurement process. I cannot complain. But in many cases the problem is the complexity of the regulations, the system, the urgency of the requirement. Those all tend to blunt the basic business instincts of people out there, and we have to stop that. We just have to stop that.

Senator KASTEN. Thank you, Mr. Chairman.

Senator STEVENS. Thank you, Senator.

Mr. Sherick, we thank you. The demands that are placed on the Department are great, and we know the role that you play. Those of us who have a role here in reviewing the requests for funding from the Department of Defense are heartened by the work that you are doing. Again, we want to assure you of complete cooperation from this end of the Hill if there is anything we can do to help.

Mr. SHERICK. Thank you.

Senator STEVENS. Thank you, very much.

SUBMITTED QUESTIONS

We have additional questions which we will submit to you for your response. They will be inserted in the record at this point.

[The following questions were not asked at the hearing, but were submitted to the IG for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

Spare Parts Management and Pricing Policy

QUESTION: Do you feel that the Department is vigorously pursuing competitive sources for spare parts procurements?

ANSWER: The Department of Defense has not vigorously pursued competitive sources for spare parts procurements in the past. However, I believe it is now recognized that there must be competition among the suppliers of spare parts to DoD. Important steps have been taken to provide for meaningful competition in procurement of spare parts such as the establishment of competition advocates.

Other actions being taken to assure that spare parts will be purchased in a competitive manner are: changing contracting procedures so that new contracts include provision of adequate technical data to allow the purchase of spare parts either directly from a subcontractor, another manufacturer or the prime contractor; focusing attention on the need to purchase the technical data when a system is initially purchased; restricting the use of basic ordering agreements, particularly those having redeterminable pricing provisions; and requiring that purchasers justify all proprietary and noncompetitive procurements. The Department is also taking steps to revise the performance evaluation factors for acquisition and logistics personnel to emphasize breakout, competition, value engineering, and "should cost reviews." We are going to emphasize that price must be related to the intrinsic value of the product purchased.

QUESTION: GAO has released several reports which contend the Department is subsidizing foreign military sales by underpricing stock fund items sold to foreign customers. DoD disagreed with many of the GAO findings but agreed to some stock fund pricing changes. What is your view on this issue?

ANSWER: Despite DoD's disagreement with GAO on the stock fund pricing issue, an adjustment (increase) in a surcharge rate applied to FMS sales from the stock fund was, in fact, made. This adjustment was made, according to responsible DoD pricing policy managers, pursuant to normal pricing policy procedures. The degree of adjustment was greater than had been the case with earlier adjustments of this type, thus partially satisfying GAO's concerns.

My auditors have looked into this area and are finalizing a report on stock fund pricing. Our conclusions indicate that, overall (with the increase in the surcharge rates), DoD is now recovering amounts somewhat in excess of the replacement cost for stock fund items sold to foreign customers. A copy of this report will be made available to the committee when it is completed.

QUESTION: A major problem with the fixed price redeterminable contract arrangement is prices may vary between the time of the order and actual delivery. In your view, does the accounting system provide adequate visability over these price changes?

ANSWER: The accounting system provides adequate visability over price changes resulting from fixed price redeterminable contract price changes but it does not provide a control to preclude unjustified and excessive price changes. That is the problem.

QUESTION: The so-called Hancock Report issued last year found some contracts were repriced long after shipment of the procurement material. Have you seen a trend of either increased or decreased cost as a result of this repricing procedure?

ANSWER: From mid 1979 forward to the end of 1982, basic ordering agreement prices were increasing; accordingly, costs increased during this period due to this repricing procedure.

QUESTION: The Military Services often contract with a prime contractor for major equipment including spare and repair parts. The prime contractor will procure the spare and repair parts from a subvendor after applying a labor and material markup factor. Why can't the Government contract directly with the subvendor for spare and repair parts thereby avoiding the markup factor?

ANSWER: I believe that far too often the Services buy from the prime contractor when they could and should buy from the subvendors. Purchasing of the items from the prime who buys them from a sub and so forth, a process referred to as pyramiding, results in prices that are unnecessarily high and sometimes outright exhorbitant. The Services buy from the prime for many reasons. Frequently, they lack information on the actual manufacturers of the part, do not have adequate technical data for competitive procurement or have had restrictions placed on the use of the data. This forces them to buy from the prime. Procurement officials are unaware of the prime contactor's contribution to the manufacture and reliability of individual parts and therefore feel safer in buying these items from the prime. The procuring activities lack the personnel resources required to initiate procurement actions from numerous subvendors and to get the items procured so they issue a single contract to the prime which provides all of the necessary spare and repair parts. These problems are being addressed and will be corrected.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

Spare Parts Management and Pricing Policy

QUESTION: I want to begin by thanking you for the excellent work your staff did on the draft report on aircraft spare parts procurement. When I referred my constituents from the B. H. Aircraft Company to you, I had confidence that you would treat their complaint seriously and get to the bottom of the problem. I am surprised and pleased to note that you used the B. H. Aircraft case to supply two of the examples you included in the draft report of significant savings to the American taxpayer.

In your statement, you noted that the draft report was substantially correct, even though one table contained errors regarding the extent of the problem. When do you expect to release the report in final form?

ANSWER: A revised draft should be issued by the end of September and the final should be issued approximately 90 days later.

QUESTION: What response have you received from the Air Force regarding the specific recommendations contained in the draft report?

ANSWER: No written response has been received form the Air Force as they were granted an extension until September 12, 1983.

QUESTION: You must work closely with Defense Contract Audit Agency personnel in the normal course of your duties. In your personal professional opinion, do you believe it would be wise to provide DCAA with a more independent role?

ANSWER: DCAA's current organizational placement, under the Assistant Secretary of Defense (Comptroller), certainly permits their independence in dealing with DoD procurement personnel and Government contractors. I have not observed any situations where their independence was impaired by this organizational placement.

My own view is that independence is a state of mind. Organizational placement will not guarantee it. I have problems with some people's concern that DCAA be considered a fully integrated member of the acquisition community. I think DCAA's role is that of auditor--nothing more and nothing less--and as such, they must have a close working relationship with the acquisition community but fully retain their independence of it. This is basic to the whole audit philosophy--they have to call each transaction as they see it and look at everything with the eye of the taxpayer. If waves have to be created, then they should be created.

QUESTION: Do you believe DCAA has enough resources to do as good a job as it could overseeing the Department's procurement activities?

ANSWER: I would like to point out that DCAA does not have a responsibility for audits of internal DoD procurement activities. That is the responsibility of the DoD Inspector General and the Services internal audit organizations. We have not performed any evaluations of DCAA's staffing levels, so I have no factual basis for commenting on this matter. As part of our oversight role, we will look into that aspect of DCAA's operations.

QUESTION: Could you describe for the Committee the process by which DCAA's operations are monitored and reviewed, in so far as you are aware of this process? In other words, who is responsible for watching the watchdogs?

ANSWER: I am responsible for monitoring and evaluating the effectiveness of DCAA audit operations. Currently, my office has six oversight reviews in process at DCAA. As additional personnel are recruited for my contract audit oversight group, we will expand our coverage of DCAA operations. Also, I am responsible for providing policy direction for all DoD audit organizations, including DCAA. The General Accounting Office is conducting a review of DCAA right now. GAO reviews various aspects of DCAA periodically.

QUESTION: Do you believe, based upon your experiences in investigations of procurements of all types, that there is a risk of the development of a cozy, business-as-usual relationship between Government procurement officials and the contractors with whom they deal?

ANSWER: Yes, there is risk in various business relationships including the one between procurement officials and contractors. Recognizing that this risk is present, every effort must be made to establish and expect a high level of integrity in standards of conduct of government officials. Internal controls must be in place to prevent possible wrongdoing, and the system must be checked to ensure that it is working properly.

QUESTION: In your experience, do most procurement officers

manage to meet the professional goal of remaining at arms length from the contractors with whom they deal?

ANSWER: Limited audit work has been performed in the areas that would allow us to make such an evaluation. However, to date we have not seen any indication of procurement officers not maintaining a proper arms length relationship with the contractors with whom they deal. We expect to examine that aspect of the procurement process in the very near future.

QUESTION: In your view, are DCAA auditors able to remain independent enough to adequately supervise the contracting process?

ANSWER: DCAA does not have a supervisory role in the contracting process.

QUESTION: Insofar as you are familiar with the promotion criteria established for DCAA personnel, do you believe adequate weight is assigned to the individual auditor's success in producing savings for the Government through uncovering waste, fraud, and abuse?

ANSWER: I have no direct knowledge yet of the criteria used by DCAA for promotion purposes. Our oversight reviews will examine that issue.

QUESTION: Much of your work involves looking into allegations that Department officials and Department procedures have been compromised in one way or another. In your personal professional opinion, if you were given complete freedom to organize and staff an internal Department of Defense Oversight, Investigation, and Audit Agency, how would you design it, what rules would it operate under, what degree of independence would it have, and what level of resources would you provide it?

ANSWER: I believe the organization currently established under the IG Act is a good design. The degree of independence under which I currently operate is working well and I feel I have the latitude to take all necessary actions. This organization of course recognizes and accepts the Department as it existed when the IG Bill was passed. I think this makes sense. This past year resources have been adequate in establishing the Office of the Inspector General. I have always received what I requested from the Secretary.

My office has been in operation only a short time and consequently we are learning everyday. One major area that is unique to the Department of Defense and its IG organization is the existence of the Service audit, investigative and inspections organizations as well as DCAA outside the office of the IG. The total effectiveness of this entire community depends of course on its ability to work together, avoiding duplication and insuring complete and cooperative coverage of all the Department programs and operations. I'm convinced it can work if all involved want it to work and concern themselves with making it work. I am happy to report progress to date has been generally good.

I will evaluate progress from time to time, and if I see any indication of problems which inhibit or reduce effectiveness of the oversight functions I will report them to the Secretary, the President and the Congress with my recommendations for corrective action. We work under operating rules that recognize the existence of the other oversight organizations and their responsibilities but reserve to the IG the right to go wherever in the Department that he feels is necessary and the right to review any action or investigation of any of the components.

QUESTION: Do you feel you have been provided with adequate resources in personnel and money to do your job?

ANSWER: Yes. We have had sufficient resources during fiscal year 1983. In fiscal year 1984 financial and manpower resources will increase. The amount contained in the President's fiscal year 1984 budget before Congress is $46.390 million and a personnel strength of 1,023. Congressional proposed reductions when allocated in DoD could reduce our allocation below this figure and this could cause problems. I will be requesting additional resources for fiscal year 1985.

I plan to continually reevaluate the size and effectiveness of the IG organization. We are active in many areas that have not had coverage before. Much will depend on the ability of the total audit, investigative and inspection community to work effectively together.

QUESTION: What role do you believe the present performance standards for procurement officers, insofar as you are familiar with them, plays in their motivation or lack of motivation to reduce costs to the Government in sprare parts procurements?

ANSWER: Present standards provide a lack of motivation to reduce cost of spares. Present standards place priority on speed and the number of pieces of paper that are processed. Emphasis is placed on getting an item under contract as opposed to seeking competition to get an item at the lowest price.

The implementation of the Secretary of Defense's 10 point program should do much to correct this and provide the guidance and resources to procurement officers permitting them to get the job done right.

QUESTION: If you had the ability to alter the factors which are weighed in deciding which procurement officer is selected for promotion, which factors would you like to see be given the greatest weight?

ANSWER: Procurement officials should be judged on their ability to use all the negotiation tools at their disposal to get the best and fairest contract for the Government and to insure that ample provisions are included to protect the Government's interest and apply penalties in the absence of acceptable performance. They should also be judged on their ability to represent the Government and to enforce the contract provisions that protect the Government's interest.

QUESTION: In assessing the performance of the Government's procurement officers, most of whom are civil servants, how would you compare their age, average experience, education, and compensation with the corporation marketing and sales professionals they must deal with from day to day?

ANSWER: While I do not have specific data on these matters, I would speculate that the salaries of corporate marketing and sales personnel are substantially higher than DoD procurement officers. This does not necessarily mean that much in terms of performance. I have a high regard for the quality and competence of our Government procurement officials. There is no question, however, much can be done to improve the training, professionalism, number and resource support of our in-house force.

We have to also assure that the contracting officers are protected in their independence and insulated from pressure imposed by in-house program managers as well as contractor representatives.

QUESTION: Do you have any recommendations regarding improvements you would like to see in Federal civilian procurement officer training, compensation, and promotion?

ANSWER: Since my office has not performed any audits or reviews on these matters, I am not able to provide you with any meaningful proposals on needed improvements. However, I personally believe training should provide a strong emphasis on the high level of integrity expected of the individual officer in protecting the Government's interest. We should also assure that compensation and grade levels be commesurate with responsibilities.

In service training on procuremnt techniques, mission program objectives and forecasts is equally important.

The procurement officers, while they may be and should be a part of the Services mission support staff, must always remember that they work under rules and regulations that demand a high standard of personal integrity and independence and also concern for the interest of the Government and the taxpayer over and above any parochial project interest.

QUESTION: Have you been invited to provide any input into the new Federal Acquisition Regulations drafting process?

ANSWER: No, I have not been asked to participate in the drafting process or to provide any comments on the Federal Acquisition Regulations. I have met on several occasions with Don Sowles, the head of the Office of Federal Procurement Policy and expect to interact with that organization on a continuing basis.

QUESTION: Have you been invited to provide any input into the drafting of the Department of Defense's supplement to the Federal Acquisition Regulations?

ANSWER: I have submitted a request to the Under Secretary of Defense for Research and Engineering that my office be included in the staffing process for all revisions and additions to the Defense Acquisition Regulations. This will enable me to fulfill my statutory responsibliity for reviewing proposed regulations relating to DoD programs and operations. In addition, I have submitted three changes to the Defense Acquisition Regulations Council for their consideration. Two of our recommended changes were accepted and incorporated in the Defense Acquisition Regulations (lobbying and legal costs), and one is still pending (Should Cost studies).

QUESTION: Do you have any recommendations you would like to make concerning specific provisions you would like to see incorporated into the new Federal Acquisition Regulations or the DoD Supplement to those regulations?

ANSWER: Our experience is that the Defense Acquisition Regulations contain excellent procurement policy guidance. The problems noted in our oversight reviews have dealt primarily with the proper and full implementation of this policy guidance.

Questions Submitted by Senator Proxmire

Spare Parts Management and Pricing Policy

QUESTION: I understand that the Department of Defense is pushing hard to hold down the costs of labor as a component of Defense products. Are you monitoring this new emphasis on labor cost control to see that it is even handed--that is that there is equal emphasis placed on controlling executive salaries and bonuses and the cost of overhead items such as corporate jets, retreats and lobbying activities?

ANSWER: The Defense Contract Audit Agency has primary responsibility for the monitoring of executive salaries, bonuses and the cost of overhead items. My office is currently monitoring the results of the joint Air Force/DCAA labor rate study in the aerospace industry. Another study is planned on executive compensation and my office will closely monitor that effort. In addition, my staff's oversight review effort of DCAA will evaluate the extent of DCAA audit effort in labor cost, lobbying cost and other overhead areas.

QUESTION: Do you think it is proper for DoD to intervene in any specific management-labor bargaining negotiations to force down the demands of labor?

ANSWER: No, I think intervention would not be proper. DoD, however, should be alert to trends in labor agreements since ultimately DoD will be impacted direcly by the result.

QUESTION: Would not such an intervention by DoD to force lower labor costs be a departure of the long history of hands-off attitude concerning labor negotiations?

ANSWER: Yes, it would be a departure from the Department's hands-off attitude. It is a sensitive area but one which the Department must monitor closely because of the ultimate impact on DoD programs.

QUESTION: Would it be a violation of law or DoD regulations for an employee of the Department of Defense to attempt to influence a specific labor-management negotiation with the intent of forcing lower-wage demands?

ANSWER: The Defense Acquisition Regulation sets forth the Department's policy regarding labor-mangement disputes. At paragraph 12-101.1(e), it states:

> (e) All Departments shall remain impartial in, and refrain from taking a position on the merits of, any labor dispute, and shall refrain from the conciliation, mediation, or arbitration of any such dispute. They shall, however, act to avoid or minimize the impact of labor disputes on important procurements by assuring, to the extent practicable, that the parties to the dispute utilize all available methods for resolving the dispute, including the services of the National Labor Relations Board, Federal Mediation and Conciliation Service, National Mediation Board and other appropriate Federal, state, local, or private agencies.

Although the Department does not intervene in labor-management negotiations, it has taken necessary steps to protect itself as a customer in its dealings with industry. Section 12-101.2 of the Defense Acquisition Regulation states, in part, that contractor labor policies and compensation practices, whether or not they are provided

for in labor-management agreements, are not an acceptable basis for allowance of costs in cost-reimbursement-type contracts or for recognition of costs in pricing fixed-price-type contracts if and insofar as they result in unreasonable costs to the Department.

These two regulatory provisions are intended to keep the Department from inserting itself in private sector matters while at the same time focusing our concern on the reasonableness of costs charged to the Government on Department of Defense contracts.

UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

STATEMENTS OF:

MS. MARY ANN GILLEECE, DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION MANAGEMENT), OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

VICE ADM. ENGENE A. GRINSTEAD, DIRECTOR, DEFENSE LOGISTICS AGENCY

MAJ. GEN. DAVID W. STALLINGS, USA, DIRECTOR, PROCUREMENT AND PRODUCTION, U.S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND

REAR ADM. J. S. SANSONE, USN, DEPUTY CHIEF OF NAVAL MATERIAL FOR CONTRACTS AND BUSINESS MANAGEMENT, HEADQUARTERS, NAVAL MATERIAL COMMAND

MAJ. GEN. ALFRED HANSEN, USAF, DIRECTOR, LOGISTICS, PLANS, AND PROGRAMS, DEPUTY CHIEF OF STAFF FOR LOGISTICS AND ENGINEERING, HEADQUARTERS, U.S. AIR FORCE

INTRODUCTION OF ASSOCIATES

Senator STEVENS. We will now turn to Mary Ann Gilleece, Deputy Under Secretary of Defense for Acquisitions Management. I understand you have several people with you, Ms. Gilleece. We would like to have you introduce those people for the record, if you will.

Do you have a statement to make?

Ms. GILLEECE. Yes, Mr. Chairman, if I may.

Senator STEVENS. Yes, please.

Ms. GILLEECE. Thank you very much. I would like to introduce the people that are seated at the table with me.

Senator STEVENS. I have been called to another committee for just 10 minutes.

Senator Rudman, would you chair the hearing?

Senator RUDMAN [presiding]. I would be glad to.

Ms. GILLEECE. Vice Admiral Grinstead, Director of Defense Logistics Agency; Army Maj. Gen. David W. Stallings, Director, Procurement and Production, U.S. Army Materiel Development and Readiness Command; Rear Adm. Joseph Sansone, U.S. Navy, Deputy Chief of Naval Material for Contracts and Business Management, Headquarters, Naval Material Command; and Maj. Gen. Alfred Hansen, U.S. Air Force, Director, Logistics, Plans, and Programs, Deputy Chief of Staff for Logistics and Engineering, Headquarters, U.S. Air Force.

IMPROVEMENT IN PROCUREMENT SYSTEM

Mr. Chairman, I would appreciate your accepting my statement for the record. I would like to focus on some of the things that Mr.

Sherick has spoken about, and also synopsize for you some of the major points that are in my statement.

First of all, when the Reagan administration took office, the appointees within the Department of Defense recognized how serious the procurement situation was, and focused attention on improvements that could be made to that procurement process.

In the examination of that process, they found that there were numerous studies that had been done before, but little if any action had been taken towards improving that system. Thus, Deputy Secretary Carlucci on April 30, 1981, issued what has been referred to as the 32 Carlucci initiatives, but in fact was designated within the Pentagon as "The Acquisition Improvement Program."

The 32d initiative, as you mentioned before, was the initiative put in at the suggestion of Senator Proxmire concerning competition.

The administration within the Department of Defense, and the personnel within the Department of Defense, have worked on implementation of the Carlucci initiatives since their issuance in April 1981.

Recently Deputy Secretary of Defense Thayer has reviewed the implementation of those 32 initiatives. He has identified six initiatives that he believes warrant his personal attention. In fact, he combined some of those upon which no action had been taken, and focused on six that are major initiatives.

SPARE PARTS PROGRAMS

Two of these relate to the spare parts arena. One deals with readiness and support. In the past, the readiness and support has not had the clear focus of attention that it has had within the last couple of years. The initiative calls for the procurement process in the development of the major program to focus very early on readiness support and the spare parts' area, as opposed to focusing on it long after the major system has been put into the field.

The second of those six initiatives which focuses at least in part on spare parts is competition. Since the implementation of the competition initiative number 32, competition advocates have been identified at each of the commands within the Services. Competition goals have been established by the Services.

The competition advocates are to implement those goals and to assure that competition opportunities are not lost, that inhibiting factors are identified and steps taken to overcome any inhibiting factors.

Mr. Chairman, to scope the problem of spare parts for just a moment, we should recognize that the huge number of spare parts directly results in a significant challenge to our management capability. Currently we have over 3.7-million spares in the active inventory with about 1 million different parts purchased annually.

There are 13 million procurement actions per year accomplished by the Department of Defense. Most of those are in the parts' arena. The management of spares falls predominantly on our supply managers, who determine what we buy and when we buy them.

With the advent of the fielding of new major weapons systems over the past several years, we are adding spares to our inventory at the rate of thousands per month. Spare parts are generally low-dollar items bought in small quantities. Our buyers in this area are usually in the lower grades and are endeavoring to fill 10 or more purchase requests per day, which translates out to the buyer having approximately 45 minutes to read the request and deal entirely with the transaction by placing the contract.

The Defense Logistics Agency alone received over 28 million supply requisitions last year. Many of course are ordered by different users for the same item and are consolidated for purchasing action. Nevertheless, the paperwork is astounding and automation is a practical necessity.

While workload is going up, there is no significant increase in the number of personnel to handle this workload, as was specifically expressed this morning in previous testimony here.

MEMORANDUM FROM DOD SECRETARY

With disclosure by our auditors of parts where the prices paid have significantly increased, the Secretary of Defense took immediate action. On July 26, he issued the 10-point program directing that action be taken to eliminate abusive practices. Mr. Sherick referenced this program, and I would like to ask at this time that that memorandum from the Secretary of Defense be placed in the record, with your permission.

Senator RUDMAN. That will be included. What is the date of that?

Ms. GILLEECE. July 25, 1983, sir.

Senator RUDMAN. Without objection, that will be included in the record.

[The information follows:]

THE SECRETARY OF DEFENSE

WASHINGTON, THE DISTRICT OF COLUMBIA

25 July 1983

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL
INSPECTOR GENERAL
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Spare Parts Procurement

Our recent audits and investigations of aircraft spare parts accounts demonstrate conclusively that we must make major changes in the way we order and purchase spare parts. The directives we instituted in March 1981 to increase competitive bidding and hold down prices have not been enforced vigorously enough throughout the Defense Department.

To ensure that we are not plagued with pricing abuses in the future we have developed and put in place a ten point program. It is our joint responsibility to see that all civilian and military personnel in the procurement branches of the Department comply with these procedures.

First, we should offer incentives to increase competitive bidding and reward employees who rigorously pursue cost savings. Actions such as the Air Force's recent award of a $1100 bonus to the Air Force sergeant who uncovered excessive overpricing on a spare part should be continued and given your personal attention.

Second, I expect you to take stern disciplinary action -- including reprimand, demotion and dismissal -- of those employees who are negligent in implementing our procedures.

Third, I have directed Deputy Secretary Thayer to work with the Service Secretaries to alert defense contractors to the seriousness of the problem and of our firm intention to keep prices under control. We expect them to ensure that their employees also pursue fair pricing practices by undertaking disciplinary action when necessary or rewarding employees where appropriate. I will carry this message to defense contractors in Hartford, Connecticut in a speech I will give there later this week.

Fourth, now that all of the Services have competition advocates in place in their buying commands, I expect those competition advocates to challenge orders that are not made competitively or appear to be excessively priced and I expect our procurement officers to heed their advice.

Fifth, we simply must refuse to pay unjustified price increases. I know the Air Force now carefully checks price increases on aircraft spare parts. If the price increase is excessive, the Air Force is refusing to pay it. Such efforts are already underway in the other Services and they should continue to receive the highest priority. To assist you in these efforts, the Defense Contract Audit Agency will work with your contract administration offices to strengthen spare parts pricing procedures and to assist in the negotiations of major spare parts purchases.

Sixth, we must accelerate reform of our basic contract procedures. The Inspector General's recent investigations underscore the importance of reforming our basic contract procedures to encourage competition, preclude overpricing and, as an added insurance, give us the legal right to recover excessive payments.

For example, many of our existing basic ordering agreements routinely carried a price redeterminable clause which allowed the manufacturer to set the price for repeat orders of spare parts. You should continue to phase out existing portions of ordering requirements which allow the manufacturer to redetermine prices and make every effort to obtain firm fixed-price contracts. We must redouble ongoing attempts to increase the number of contracts open for competitive bidding.

Seventh, we must take steps to obtain refunds in instances where we have been overcharged. In those contracts where we have the right to reduce an excessive price and set a more equitable price, we should not hesitate to exercise that right. If we have to, we should sue a contractor to recover unjustified payments. In some cases the contracts we signed may not give us the legal right to a refund. In these instances, the Services and the Department should aggressively pursue refunds through discussions with senior managers of the company similar to those Secretary Lehman is currently conducting with the Sperry Corporation and Gould Simulation Systems Inc. We should convey to them our strong belief that it is in the best interests of both the Department of Defense and the defense industry to have contractors voluntarily refund any payments that are clearly exorbitant and unjustified.

Eighth, where alternative sources of supply are available, we should cease doing business with those contractors who are guilty of unjustified and excessive pricing and who refuse to refund any improper overcharges. If alternate sources, domestic or foreign, are not available, we will do our best to develop such sources rapidly. In December 1982 we significantly strengthened our procedures for suspending and disbarring irresponsible contractors.

We should exercise those administrative powers in a timely manner -- within 30 days of indictment or conviction of a contractor.

Ninth, our audits and investigations of spare parts will continue. In addition to the eight audits the Inspector General has already issued, Service auditors have issued some 25 others. The Inspector General has six additional audits in progress, and will begin three others in the next few months. These will focus on the broader ramifications of how we buy spare parts, what we pay for them, and how they are used and controlled once they enter the inventory. In addition to investigating aircraft engine spare parts, we will now look at cost growth in electronic spares and contract adminstration activities.

The tenth and final point is that the Defense Department purchases millions of spare parts worth billions of dollars each year. I think you will agree that in the majority of cases we have been satisfied with the quality and prices of those spare parts. The many fine corporations and dedicated employees supporting our nation's defenses should not be maligned as a group for the failures of a few. However, it is our responsibility to ensure that we do not waste one dollar of the taxpayers' money. We must make every effort to eliminate excessive pricing in the future, to recover unjustified payments we have already made, and where necessary, to expose and take appropriate corrective action against those contractors and employees who are either negligent in performing their duties or are engaging in excessive pricing practices.

Joseph W. Kittinger

PROGRAMS ESTABLISHED TO FOCUS ON SPARE PARTS COSTS

Ms. GILLEECE. Thank you.

Significant among those 10 points are sharpening of our pricing practices, taking action against employees or contractors where abuses warrant action, increasing competition, phasing out certain redeterminable provisions, and obtaining refunds where we have been overcharged.

This problem is not new. The problem has in the past been the focus of attention by the services and DLA.

Each of the services and DLA have established groups and programs to address the matter. Some of these efforts were initiated years back. For example, the Air Force initiated its Zero Over-Price program to prevent paying unreasonable prices for spares. This program was instituted in March 1979 to encourage and reward Air Force personnel who identify and report goods and services suspected of being unreasonable.

Recently, the Air Force also established an Air Force management analysis group for spare parts' acquisition. The group is to identify problems that prevent the Air Force from paying fair and reasonable prices for spare parts, and from increasing competition.

The DLA has an existing program called "Project FOCUS." That acronym is "Find Out Cost to the United States." The purpose of the program is to identify parts for which there is little or no competition, locate new sources, develop additional technical information, and negotiate fair prices.

During the past year, two DLA hardware centers have achieved $1.5 million in savings under this program. Currently we have in distribution a new policy on the breakout of replenishments spare parts. That new policy, which would amend a previous directive on high-dollar spare parts' breakout, was begun by my predecessor, Mr. William Long. He suggested that the services review our regulation in that area and suggest changes that should be made. Changes were made, and that particular regulation is currently being distributed.

We hope that it will improve our management and simplify our processes. The purpose of breakout is to break away replenishment spare parts from major systems' suppliers and buy them competitively. Or, if that is not possible, to buy them from the actual manufacturer.

In addition to breakout of replenishment spare parts, which is far downstream, we also need to plan for breakout in the development stage of a major weapons system. As I mentioned, this will be the focus of Mr. Thayer's personal attention is one of his six initiatives.

My staff is also currently addressing this particular problem in the development stage of major weapons system to see what can be done to improve the purchasing of spares.

To assist in the procurement of low-value parts, the Department issued the Defense Acquisition Regulation Small Purchase Manual in 1976. It become absolutely clear that there has not been enough focus on that particular manual. Thus, very recently I signed a memorandum which requires that we re-emphasize and reacquaint personnel with this particular manual by conducting seminars.

We are also seeking to enhance the use of our value engineers for items where the price appears to be out of line with the intrinsic value of the part.

SPARE PARTS ACQUISITION

Mr. Chairman, we have been taking action in the acquisition of spare parts. The 10-point program laid out by the Secretary will accelerate these actions and prompt additional actions. Within the Department, we recognize the seriousness of the problems associated with the purchase of spare parts, many of which have been referred to this morning.

It should be noted that most of the examples identified by the media have been uncovered by Defense personnel and reported within the system. These examples have resulted in even more management attention being focused on improving our procurement of spares.

We support the need for making sure our weapons are at a high degree of readiness at all times; but at the same time, our support for that readiness must not be conducted in such a way that we misuse the taxpayers' dollars. I can assure you that renewed management attention has accompanied the recent focus on improving readiness.

Mr. Chairman, this concludes my statement. At this time, each of the service witnesses would like to make a brief statement, and then we would be pleased to answer you questions.

[The prepared statement of Ms. Gilleece follows:]

PREPARED STATEMENT OF MS. MARY ANN GILLEECE
DEPUTY UNDER SECRETARY OF DEFENSE
RESEARCH AND ENGINEERING
(ACQUISITION MANAGEMENT)

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, IT IS A PLEASURE TO APPEAR BEFORE YOU TODAY TO DISCUSS SPARE PARTS MANAGEMENT AND PRICING.

ONE OF THE FIRST ACTIONS TAKEN BY THE ADMINISTRATION APPOINTEES WITHIN THE DEPARTMENT OF DEFENSE WAS TO LEAD AN EXAMINATION OF THE PROCUREMENT PROCESS. THIS EXAMINATION WAS CONDUCTED BY DOD WITH INPUT FROM INDUSTRY AND RESULTED IN THE CONCLUSION THAT MANY ISSUES IN THE ACQUISITION AREA HAD BEEN STUDIED AND CONSIDERED, BUT LITTLE IF ANY ACTION HAD BEEN TAKEN TOWARD MAKING IMPROVEMENTS. WE WERE DETERMINED TO OBTAIN EFFICIENCIES AND ECONOMIES IN ACQUISITION BY FOCUSING ON APPROPRIATE IMPROVEMENT. THUS, ON APRIL 30, 1981, DEPUTY SECRETARY OF DEFENSE CARLUCCI ISSUED A MEMORANDUM THAT FOCUSES ATTENTION ON 32 INITIATIVES UNDER THE DOD ACQUISITION IMPROVEMENT PROGRAM (AIP). CONGRESS HAS BEEN SUPPORTIVE OF THESE EFFORTS. SEVERAL OF THESE INITIATIVES DIRECTLY AFFECT ACQUISITION OF SPARE PARTS. RECENTLY THE DEPUTY SECRETARY OF DEFENSE REVIEWED THE AIP INITIATIVES AND CONSOLIDATED INTO SIX CATEGORIES THOSE INITIATIVES THAT STILL NEED ACTION TO BE TAKEN. DEPUTY SECRETARY THAYER HAS COMMITTED TO GIVING THESE SIX HIS PERSONAL ATTENTION.

TWO OF THE SIX ARE SIGNIFICANT TO SPARE PARTS. ONE CONCERNS IMPROVED READINESS AND SUPPORT WHICH HAS SUFFERED FOR A LONG TIME. THE FOCUS IS TO BUDGET DOLLARS IN THE PROGRAM

EARLY. OVER THE PAST SEVERAL YEARS ADDITIONAL FUNDS HAVE BEEN BUDGETED AND OBTAINED TO IMPROVE SUBSTANTIALLY READINESS AND SUPPORT FOR OUR FORCES. INCREASED NUMBER AND AVAILABILITY OF SPARE PARTS HAS BEEN, AND CONTINUES TO BE, A MAJOR FACTOR IN IMPROVING READINESS.

THE OTHER INITIATIVE CONCERNS INCREASING COMPETITION. A HIGH LEVEL WORKING GROUP, WITH THE ASSISTANT DEPUTY UNDER SECRETARY AS CHAIRMAN, IS CURRENTLY WORKING THE COMPETITIVE INITIATIVE. RECOGNIZING THAT THERE IS ROOM FOR IMPROVEMENT, WE HAVE TAKEN ACTION TO FOCUS ON THIS MATTER. COMPETITION ADVOCATES IN MAJOR BUYING ACTIVITIES HAVE BEEN ESTABLISHED TO ENSURE THAT COMPETITIVE OPPORTUNITIES ARE NOT LOST AND INHIBITING FACTORS ARE IDENTIFIED AND STEPS TAKEN TO OVERCOME THESE FACTORS. DOD COMPONENTS HAVE ESTABLISHED COMPETITIVE GOALS. SECRETARY LEHMAN RECENTLY ADVISED THAT IN THE FIRST SIX MONTHS OF FISCAL YEAR 1983 OVER $40 MILLION IN SPARES WAS IDENTIFIED FOR COMPETITION THAT HAD PREVIOUSLY BEEN SOLE SOURCE.

THE NUMBER OF SPARE PARTS IN THE DOD INVENTORY RESULTS IN A SIGNIFICANT CHALLENGE TO OUR MANAGEMENT CAPABILITY. CURRENTLY WE HAVE OVER 3.7 MILLION SPARES IN THE ACTIVE INVENTORY WITH ABOUT ONE MILLION PURCHASED ANNUALLY. THE MANAGEMENT OF SPARES FALLS PREDOMINATELY ON OUR SUPPLY MANAGERS WHO DETERMINE WHAT WE BUY AND WHEN. WITH THE ADVENT OF FIELDING NEW MAJOR WEAPON SYSTEMS OVER THE PAST SEVERAL YEARS WE ARE ADDING SPARES TO THE INVENTORY AT THOUSANDS PER MONTH. APPROXIMATELY 13 MILLION PROCUREMENT ACTIONS ARE PROCESSED ANNUALLY WITH THE LARGE BULK OF THESE FOR PARTS.

SPARE PARTS ARE GENERALLY LOW DOLLAR ITEMS, BOUGHT IN

SMALL QUANTITIES. OUR BUYERS IN THIS AREA ARE USUALLY IN THE LOWER GRADES AND ARE ENDEAVORING TO FILL TEN OR MORE PURCHASE REQUESTS A DAY. THE DEFENSE LOGISTICS AGENCY ALONE RECEIVED OVER 28 MILLION SUPPLY REQUISITIONS LAST YEAR. MANY, OF COURSE, ARE FOR THE SAME ITEM ORDERED BY DIFFERENT USERS AND ARE CONSOLIDATED FOR PURCHASING ACTION. NEVERTHELESS, THE PAPERWORK IS ASTOUNDING AND AUTOMATION IS A PRACTICAL NECESSITY. WHILE WORKLOAD IS GOING UP THERE IS NO SIGNIFICANT INCREASE IN THE NUMBER OF PERSONNEL TO HANDLE THIS WORKLOAD.

WITH DISCLOSURE BY OUR AUDITORS OF PARTS WHERE PRICES PAID HAD INCREASED SIGNIFICANTLY, THE SECRETARY OF DEFENSE TOOK IMMEDIATE ACTION. ON 26 JULY HE ISSUED A TEN POINT PROGRAM DIRECTING THAT ACTION BE TAKEN TO ELIMINATE ABUSIVE PRACTICES. SIGNIFICANT AMONG THESE ARE SHARPENING OUR PRICING PRACTICES, TAKING ACTION AGAINST EMPLOYEES OR CONTRACTORS WHERE ABUSES WARRANT ACTION, INCREASING COMPETITION, PHASING OUT CERTAIN REDETERMINABLE PROVISIONS, AND OBTAINING REFUNDS WHERE WE HAVE BEEN OVERCHARGED.

THE PROBLEM IS NOT NEW. EACH OF THE SERVICES AND DLA HAVE ESTABLISHED GROUPS AND PROGRAMS TO ADDRESS THE MATTER. SOME OF THESE EFFORTS WERE INITIATED YEARS BACK. FOR EXAMPLE, THE AIR FORCE INITIATED ITS ZERO OVERPRICE PROGRAM TO PREVENT PAYING UNREASONABLE PRICES FOR SPARES. THIS PROGRAM WAS INSTITUTED IN MARCH 1979 TO ENCOURAGE AND REWARD AIR FORCE PERSONNEL WHO IDENTIFY AND REPORT GOODS AND SERVICES SUSPECTED OF BEING UNREASONABLE. RECENTLY THE AIR FORCE ESTABLISHED AN AIR FORCE MANAGEMENT ANALYSIS GROUP FOR SPARE PARTS ACQUISITION. THE GROUP IS TO IDENTIFY PROBLEMS THAT PREVENT THE AIR FORCE FROM PAYING FAIR AND REASONABLE PRICES FOR SPARE PARTS AND FROM INCREASING COMPETITION. THE DLA HAS AN

EXISTING PROGRAM CALLED PROJECT FOCUS (FIND OUT COST TO U.S.) THE PURPOSE OF THE PROGRAM IS TO IDENTIFY PARTS FOR WHICH THERE IS LITTLE OR NO COMPETITION, LOCATE NEW SOURCES, DEVELOP ADDITIONAL TECHNICAL INFORMATION, AND NEGOTIATE FAIR PRICES. DURING THE PAST YEAR TWO DLA HARDWARE CENTERS ACHIEVED $1.5 MILLION IN SAVINGS UNDER THIS PROGRAM.

CURRENTLY, WE HAVE IN DISTRIBUTION A NEW POLICY ON BREAKOUT OF REPLENISHMENT SPARE PARTS. THIS WILL REPLACE, IN PART, GUIDANCE ISSUED OVER A DECADE AGO WHICH FAILED DUE TO LACK OF ATTENTION AND LOOSENESS IN PROCEDURES. WE HOPE IT WILL IMPROVE OUR MANAGEMENT AND SIMPLIFY OUR PROCESSES. THE PURPOSE OF BREAKOUT IS TO BREAK AWAY REPLENISHMENT SPARE PARTS FROM MAJOR SYSTEMS SUPPLIERS AND BUY THEM COMPETITIVELY, OR IF THAT IS NOT POSSIBLE, TO BUY THEM FROM THE ACTUAL MANUFACTURER. HOWEVER, THIS PROGRAM COMES INTO PLAY TOO FAR DOWNSTREAM TO BE OPTIMALLY EFFECTIVE. WE NEED TO PLAN FOR BREAKOUT IN THE DEVELOPMENT STAGE OF A MAJOR WEAPON SYSTEM. MY STAFF IS ADDRESSING THIS MATTER NOW. THAT WILL HELP SOLVE THE PROBLEM IN THE FUTURE; IT DOES NOT FOCUS ON THE PROBLEM OF MANAGING REPLENISHMENT PARTS ALREADY IN THE SYSTEM.

TO ASSIST IN THE PROCUREMENT OF HIGH VOLUME LOW VALUE PARTS THE DOD ISSUED THE DEFENSE ACQUISITION REGULATION SMALL PURCHASE MANUAL IN 1976. THIS MANUAL EMPHASIZES IN PRICING SMALL VALUE PARTS; PAST COST EXPERIENCE, VISUAL AND VALUE ANALYSIS, AND SEEKING ALTERNATE SOURCES FOR COMPETITION. THIS GUIDANCE APPEARS TO HAVE SUFFERED FROM NON-USE AND I RECENTLY DIRECTED THE SERVICES AND DLA TO RE-AQUAINT AND RE-EMPHASIZE TO THEIR PERSONNEL THIS GUIDANCE BY CONDUCTING SEMINARS. WE ARE ALSO SEEKING TO ENHANCE THE USE OF OUR VALUE ENGINEERS FOR

ITEMS WHERE THE PRICE APPEARS OUT-OF-LINE WITH THE INTRINSIC VALUE OF THE PART.

WE HAVE BEEN TAKING ACTION IN THE ACQUISITION OF SPARE PARTS. THE TEN POINT PROGRAM LAID OUT BY THE SECRETARY OF DEFENSE WILL ACCELERATE THESE ACTIONS AND PROMPT ADDITIONAL ACTIONS. WITHIN DOD WE RECOGNIZE THE SERIOUSNESS OF THE PROBLEMS ASSOCIATED WITH THE PURCHASE OF SPARE PARTS. IT SHOULD BE NOTED THAT MOST OF THE EXAMPLES IDENTIFIED BY THE MEDIA HAVE BEEN UNCOVERED BY DEFENSE PERSONNEL AND REPORTED WITHIN THE SYSTEM. THESE EXAMPLES HAVE RESULTED IN EVEN MORE MANAGEMENT ATTENTION BEING FOCUSED ON IMPROVING OUR PROCUREMENT OF SPARES. MR. CHAIRMAN, WE SUPPORT THE NEED FOR MAKING SURE OUR WEAPONS ARE AT A HIGH DEGREE OF READINESS AT ALL TIMES. BUT AT THE SAME TIME THE SUPPORT FOR THAT READINESS MUST NOT BE CONDUCTED IN SUCH A WAY THAT WE MISUSE THE TAXPAYERS DOLLARS. I CAN ASSURE YOU THAT RENEWED MANAGEMENT ATTENTION HAS ACCOMPANIED THE RECENT FOCUS ON IMPROVING READINESS.

THIS CONCLUDES MY STATEMENT. MR. CHAIRMAN AT THIS TIME EACH OF THE SERVICE WITNESSES AND THE DLA WITNESS WOULD LIKE TO MAKE A BRIEF STATEMENT AND THEN WE WOULD BE PLEASED TO ANSWER YOUR QUESTIONS.

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PREPARED STATEMENT OF MAJ. GEN. ALFRED G. HANSEN

Director, Logistics Plans and Programs

Deputy Chief of Staff/Logistics and Engineering

Headquarters, USAF

Mr. Chairman and Members of the Committee:

I am pleased to appear before you today to discuss the Air Force Aircraft Spares and Repair Parts Program that is contained in the Aircraft Procurement Authorization of the FY 84 budget request. The media has highlighted problems with spare parts overpricing and competition in a sensational way. Therefore, I look upon today's discussion as an important opportunity to present the positive actions that are being taken within the Air Force to improve the procurement of spare parts. The Air Force, like any large organization that uses over two million items and buys approximately one hundred thousand items each year, has problems. However, let there be no misunderstanding, the Air Force will not be satisfied until we and every taxpayer is assured that a reasonable price is being paid in a competitive environment for every spare part used by the Air Force. This is no easy task when you consider the volume of business we do and complexity and changing technology of the weapon systems we support. The Air Force currently has programs in place that identify overpricing and we are expanding our efforts in this area. Additionally, we are taking aggressive actions to improve our procurement practices.

The grass roots effort of Air Force programs to prevent paying unreasonable prices for spares is ZERO OVERPRICE. This Air Force-wide program was instituted in March of 1979 to encourage and reward Air Force personnel who identify and report goods and services suspected of being unreasonable. For spare parts, the program prints the item's price on the supply paperwork when it is withdrawn from our warehouses so that personnel can compare the item with the price and report obvious overpricing. The program works and works well. In fact, it was an Air Force crew chief that identified, through this program, the much publicized overpriced plastic cap for the E-3A navigator's seat which the Defense Logistics Agency purchased for the Air Force. In FY 82, 1,093 of the items identified were verified as overpriced and corrected by the Air Force. Air Force personnel are alert to overpricing. Even outside of the ZERO PRICE program, our people have been identifying, reporting and correcting overpricing. It was Air Force employees who screened and identified items that appeared to have unreasonable prices that led to the recent highly publicized overpricing audits. The Air Force is planning to use these examples to develop an Air Force-wide publicity campaign to increase emphasis on the ZERO OVERPRICE program.

The Air Force's largest buyer of spare parts, the Air Force Logistics Command (AFLC), has gone on the offensive against unreasonable spare parts price increases with PACER PRICE. This newly established program will institutionalize a pricing control procedure that will result in buying smarter

and more effectively. PACER PRICE is a major Air Force initiative involving an in-depth study of the spare parts pricing process during provisioning, acquisition and replenishment. The program brings together a team of engineers, manufacturing estimators, price analysts, small business people and a person called the "competition advocate" to examine items being bought each year. This examination includes "should cost" evaluations, application of parameters to determine exceptional price growth and a review of the standard Air Force pricing systems to ensure the accuracy of catalog prices.

The Air Force is also attacking the overpricing problem through increasing competition. Competition reduces prices; therefore, the Air Force is committed to encouraging competition in any way possible. We have two major programs underway to increase competition. Our COMPETITION ADVOCACY program within AFLC and the Air Force Systems Command (AFSC) is improving the Air Force's competitive performance. The program establishes competition advocates within the lower management levels of AFLC and AFSC. These advocates, who are headed by a Colonel or a civilian equivalent, pursue the major impediments to competition. They are actively involved in the acquisition and management of technical data that is key to competitive "breakout". Also, they are currently resolving constraints to competition, emphasizing the balance between readiness and competition and ensuring the accuracy of our reporting of competitive and noncompetitive percentages.

Our other major program, the DOD SPARE PARTS BREAKOUT PROGRAM, has done much to breakout parts to their actual manufacturers since it was established in 1969. Admittedly, our progress, including improving competition through this program has suffered because of the lack of technically qualified personnel (engineers), technical data rights problems and the lack of technical data and modern ADPE to manage the technical data once it is obtained. However, again we are taking aggressive actions to improve the effectiveness of this program. We are reviewing proposals to increase manpower and resources so that the number and quality of item screenings can be increased. Also, we have efforts underway to develop new methods of challenging manufacturer's restrictive codes and data rights. In the future, we expect the DOD SPARE PARTS BREAKOUT PROGRAM to increase competition among Air Force contractors, reduce sole source procurements, broaden the industrial base and lower prices for spare parts.

The Air Force recently went beyond the above programs and improvements to fix its overpricing problem by establishing an Air Force Management Analysis Group (AFMAG) for spare parts acquisition. The AFMAG was established at the direction of the Air Force Chief of Staff to perform an independent analysis of the spare parts acquisition process to identify those problems that prevent the Air Force from paying fair and reasonable prices for spare parts and from increasing competition. The AFMAG short term focus is to take actions that will impact the FY 84 spare parts buy to ensure a reasonable price on every item through increased competition. Its long term focus is to institutionalize these actions through ADP tools, financial management and weapon system management of technical data. The AFMAG has

pointed out that the Air Force does an excellent job of screening for price reasonableness and competition breakout potential items that comprise 80% of our dollar value buy. Screening has been limited largely because of manpower reductions and availability. The AFMAG is currently studying the feasibility of screening every Air Force spare part that results in a FY 84 buy. As I stated earlier, the Air Force is serious about ensuring that a reasonable price is paid in a competitive environment for every spare part used by the Air Force.

REPLENISHMENT PARTS BREAKOUT PROGRAM

Senator STEVENS. With regard to the last item, it is my understanding that the GAO is looking into your DoD replenishment parts breakout program on the basis that it has increased sole-source procurement in a situation where we have already 61 percent of the items procured on a sole-source basis.

Is this breakout program going to increase the sole-source procurement as projected by the GAO, in your opinion?

Ms. GILLEECE. Mr. Chairman, the breakout program has been in effect for over 10 years. It has only been recently, within this month, that we are making amendments to that breakout program.

Senator STEVENS. These are the ones issued June 1, 1983? Dated June 1, 1983?

Ms. GILLEECE. Yes, that is the date. I do not believe that the GAO has examined these changes because the new regulation is just now being distributed.

I would gladly share with you the changes that have been made to the former regulation.

Senator STEVENS. Well, we have been informed that it has been protested, and there is a GAO investigation to commence now on the basis that the result of the change will be to increase sole-source procurement and reduce competition, as far as these items are concerned.

Ms. GILLEECE. Mr. Chairman, I am unfamiliar with a "protest," per se. But I can assure you, if GAO finds that so, we would certainly take their findings into consideration.

Under the former regulation, the contractor coded whether a part should be bought competitively, bought from the actual manufacturer, or bought from the prime contractor. The new regulation changes that so that the Government codes whether it should be bought competitively or otherwise. Technical input from the prime contractor will be considered.

The second change that was made was that the Small Business Administration personnel are encouraged to participate in the screening and coding references.

Furthermore, the regulation was changed such that any part with an annual buy of $10,000 or more must be reviewed for breakout.

The regulation requires that at least every 3 years, any part that has not been broken out is once again reviewed to determine whether it should be broken out.

Mr. Chairman, we expect this to improve competition. If the findings of the GAO are contrary to that, we would certainly consider them at that time.

INCREASE IN COMPETITIVE AWARDS

Senator STEVENS. Well, GAO told us that in 1982 only 37 percent of the Department's awards were on a competitive basis. Has anything been done to change that for this year? Can we expect more competition in the 1983 procurement?

Ms. GILLEECE. Mr. Chairman, let me scope that also. If we take 100 percent of the spare parts, our recent review has shown that approximately 30 percent of those are in the initial provisioning stage. In other words, when you purchase a major weapons system, you also purchase initial spare parts; and you purchase those directly from the manufacturer of the item at that time.

Our computations and review show that of the 100 percent of spart parts dollars approximately 30 percent are bought competitively. So that the GAO findings, if that is one spare parts, would not be out of line with our knowledge.

We expect to better that. We hope that this regulation will certainly be one thing that will improve competition. With our competition advocates and goals, I think we are going to see an improvement.

DOD 10-POINT PROGRAM

Senator STEVENS. We reviewed the Department's 10-point program—and I think the Secretary should be commended for taking that action—but it appears that that program is "suggestive" rather than a "directive" to the Department. Is it to be a directive to the Department to comply with that 10-point program?

Ms. GILLEECE. It is a memorandum to each of the Services, to be implemented by the Services.

Senator STEVENS. Well, does it require additional directives or something to be implemented by the services? It is not a direction. The way it is stated, it is a 10-point program that we would support, but it would seem that there would have to be specifics to make certain that management does comply with 10-point program.

Ms. GILLEECE. Our responsibility within the Department of Defense is to make sure that we purchase items in the best way. The Secretary has, as you mentioned, outlined management techniques in the spares' arena. The services would certainly be implementing these management techniques, if they have not already done so.

Senator STEVENS. Well, I guess we will just have to get each one of the services in here and ask them if they are going to comply with it. I think that the Secretary should direct the services to comply with it. A suggestion is one thing; a directive is something that I assume people can be disciplined for if they do not comply with it.

We have had so many things. This one item of an electronics purchase of the Navy, a 4-cent item that had a unit cost of $110. Now what is going to get to that as far as this program is concerned?

Ms. GILLEECE. Mr. Chairman, I think it would be much more appropriate for the Navy to discuss that particular example. I also would like to, in reference to your previous question about a directive, quote to you from the memorandum. "It is our joint responsibility to see that all civilian and military personnel in the procurement branches of the Department comply with these procedures."

Admiral SANSONE. I am sure we would be able to address the Navy matter, sir.

Senator STEVENS. Well, let me read the rest of it, though. It says, first, "we should offer." Second, "I expect you to." Third, "I have directed the Deputy Secretary to work with the service secretaries." Fifth, "We simply must refuse to pay." Sixth, "We must accelerate." Seventh, "We must take steps.

We do not disagree with the steps; it is just who is going to take them. I think that the Secretary ought to—and I would be happy to write and tell him—I think he ought to be specific about who we can look to for accountability to carry out that memorandum.

It is not a bad memorandum. As a matter of fact, the 10-point program is certainly going in the right direction. But we think we ought to have someone who is accountable if that 10-point program is not carried out.

SPARE PARTS BREAKOUT PROGRAM

Now as far as this breakout, is there a system in place now to review the spare parts requirements and break out those items that are susceptible to competitive procurement? I note that you said that the Government is now going to determine which items are rated competitive and which are going to be sole source. But is there a system in place now to review those spare parts requirements so that we can be assured that there will be a determination made on competition this year?

Ms. GILLEECE. Senator, the prior regulation has been in effect for over 10 years, the high-dollar value spare parts breakout program, is exactly that.

Senator STEVENS. Well, with all due respect, we are talking about last year and they went off the wall last year as far as spare parts are concerned, and we are being asked to appropriate almost 35 percent more money for spare parts procurement.

Now it is not sufficient for this committee to tell us that we have had adequate protections for 10 years, because they are not working. We would like to know: What are you going to do to put into effect a system to review the spare parts requirements, and to break out those that can be competitively procured.

Ms. GILLEECE. Mr. Chairman, I can only tell you that our managers do utilize the spare parts breakout program when they analyze each of the spare parts, as to whether it is a subject for competition or not.

Senator STEVENS. Madam Secretary, there are contracts in effect now. Are they subject to review now as a result of this 10-point program?

Ms. GILLEECE. Yes, sir.

Senator STEVENS. But procurements are underway now which are going to be reviewed?

Ms. GILLEECE. Yes, sir. The procurements are being reviewed under the 10-point program. Once the memorandum came out from the Secretary of Defense, it would be immediately implemented within the Services. And I have had each of them right here suggest to me that they expect to rely upon this for their direction.

Additionally the high-dollar spare parts breakout program is currently in effect.

Senator STEVENS. All right. We—pardon me.

COMPETITION IN SPARE PARTS ARENA

Ms. GILLEECE. The issue of competition within the spare parts arena is certainly not an easy one. It would be ill-fated if in fact we were building a satellite and, for a 10-cent part, the satellite fell out of the sky. There have been many program managers who have believed that the area of spare parts is one which clearly should be defined to make sure that the warranty and the provisioning will comply with the needs of that system.

I might mention that Admiral Rickover specifically stated that he imposed a rule that there would be no parts substitution for nuclear submarines. I think that you have to balance the needs that you have with the system and improving competition when it is appropriate.

Senator STEVENS. But he also instituted competition in procurement originally. I distinctly remember my late departed friend, the Astronaut, Mr. Schweicker, as he came back in Apollo 13, saying to all the world that he was reassured by the fact that every part was manufactured by the low bidder. [Laughter.]

I mean, it strikes home what you are saying. But on the other hand, when Senator D'Amato and I were visiting one area of procurement, we were told about one part that had been procured from a small businessman that was, in effect, taken inhouse by the prime contractor and the price went up at least, as I recall, fourfold for the same item. And guess where the prime contractor got it from? From the same manufacturer.

Now those are the things that I think are alarming to people, the markup——

Senator D'AMATO. Who they would not, Mr. Chairman, allow to bid.

CEILING FOR PROCUREMENT PROCEDURES

Senator STEVENS. They were not allowed to bid. Now the real problem is that the Carlucci initiative which we responded to give us a new ceiling, or really a threshold for procurement procedures. That raised it from $10,000 to $25,000 before we applied the normal procurement procedures.

In view of these recent disclosure—and you are right; many of them have come from the Department itself and from the Services—would you say that it is time now to go back to the other threshold? We did not have so many reports of the abuses when we used the other threshold of $10,000.

Ms. GILLEECE. Mr. Chairman, that was simply for the purpose of establishing the small-purchase threshold. This means that if you

are going to purchase an item for $15,000, for example, you use a shorter contract.

It does not mean, however, that you would not have visibility of the contractor's quotation. I remember very clearly that it was Congressman Mavroules who, on the floor of the House of Representatives at the time of discussing it, and had a 4-inch-thick document in support of the raising of the threshold. He said that this document was for the purchase of 11,000 dollars' worth of hotel rooms. There was a conference being conducted at a particular place, and for the purchase of the hotel rooms for the military there was a very thick document. That led to the simplified procedures and simplified contract.

It does not, however, mean that we should not have the visibility.

DOWNGRADING AND RECLASSIFICATION OF PROCUREMENT SPECIALISTS

Senator STEVENS. All right. I will yield to the other Senators, but I do have one last question at this time. That is: We are disturbed by the OMB management initiative that brought out a downgrading of procurement specialists, and a reclassification of those specialists. Have you examined that initiative? Can you tell us whether that change has had any effect on the department's ability to manage these procurement programs?

Ms. GILLEECE. Mr. Chairman, you are referring to an OPM initiative concerning the 1102 procurement series. It did disrupt the procurement community for approximately 1½ years.

Senator STEVENS. Have they been downgraded?

Ms. GILLEECE. No, sir. Recently one of my fellow appointees at the Department of Defense and myself have been meeting with Mr. Devine, the head of OPM. We have resolved the problem to the satisfaction of not only the Department of Defense, but DOE, NASA, GSA, and the Office of Federal Procurement Policy.

The contracting personnel have not been downgraded. However, the administration's position to tighten the regulations has been met.

Senator STEVENS. Well, since I am chairman of both committees, I do not know what that means. Grandma wanted a Republican and grandpa wanted a Democrat, and they are both happy. [Laughter.]

I really do not understand that, how OPM is satisfied by tightening the regulations. Is there to be a reclassification in the future?

Ms. GILLEECE. There is nothing I know of planned at this particular time. I think that if you examine the situation contracting personnel for the last 10 years, you would discover that there has been no grade creep within the contracting community.

That was, I believe, what OPM was looking at; stopping grade creep. I think the recognition that there was no grade creep was what impacted on the final resolution of the problem.

Senator STEVENS. Senator Rudman.

Senator RUDMAN. Thank you, Mr. Chairman.

PROGRAM FAILURE TO PURSUE CRIMINAL ACTION IN SOME CASES

Ms. Gilleece, I really find one thing lacking in Secretary Weinberger's 10-point program. I find the program to be, you know, gen-

erally constructive and we certainly are pleased to see it; but I see nothing in the 10 points essentially directing the appropriate authorities within the Department of Defense to seek criminal action where criminal action ought to be sought, and do it vigorously. Is there a reason for that omission?

[Pause.]

Senator RUDMAN. It talks about reprimand, dismissal, restitution, and debarment, but it does not talk about turning this over to the proper authorities. The proper authorities would be the appropriate U.S. attorneys who would convene whatever investigative forum necessary and prosecute these people for criminal fraud.

Ms. GILLEECE. Mr. Rudman, it was the Secretary who signed this memorandum. This is only my own interpretation—but this was a management directive.

Senator RUDMAN. Is there another directive that talks about vigorously pursuing this in the criminal justice system?

Ms. GILLEECE. I believe that is Mr. Sherick's charge, sir. His responsibility is to ferret out waste and fraud, and thus report his findings to the Department of Justice where criminal action may be indicated.

Senator RUDMAN. Well, I questioned Mr. Sherick on this earlier. You were here, I believe.

Ms. GILLEECE. Yes, sir.

Senator RUDMAN. He indicated that he would look into the possibility of increasing the vigor of that effort. I for one, Mr. Chairman, believe that there are examples here that are truly fraud, and I am going to talk about one.

EXAMPLES OF FRAUD IN PARTS PROCUREMENT

I do not know whether this is on the public record or not, so I am not going to name the company. We have an exchange of correspondence here delivered to the committee from the Secretary of Navy, who has been vigorously pursuing some of these problems, and the company gives a couple of examples of how they reach their costs.

They take a $15 item and say, we will either add a $400 support cost, which is a 3,000- or 4,000-percent overhead factor. Or, if you prefer, we will only add a $12 support cost to it. Then they go on to the other two parts, and they show us the two methods that they will allocate the support costs either across the three equally, or across the three disproportionately, and they will end up with the same net figure of $4,500 for some parts.

Now before I came here I got rather involved in a lot of things that were very much like this. I would say that one of the basic problems here is that the services, the procurement people, and the parts procurement people, are not looking vigorously enough behind the numbers as to where these support costs came from.

If we simply accept them, and company A decidedly says to us, we have a 3,000 percent overhead factor on this activity, I submit that there ought to be a price on representing that to the U.S. Government if in fact that has been a number which has been conjured by people who wish to reach a particular conclusion. I submit to

you, from some things that I have seen, that I think that is what happened.

What I want to know is, what are we doing? What is the Secretary doing to help Mr. Sherick and the services generally to pursue this in other than the civil forum? Because I think, frankly, that is what it is going to take.

What are we doing about that?

Ms. GILLEECE. I really cannot answer for Mr. Sherick. There are——

Senator RUDMAN. Well, will you answer it for the record, then?

Ms. GILLEECE. Yes, sir.

Senator RUDMAN. That would be fine.

[The information follows:]

SECRETARY OF DEFENSE DIRECTIVE SUPPORTING IG EFFORTS

Regrettably, gross inflation of prices charged for spare parts is difficult to prosecute as criminal fraud when DoD has in any way acquiesced in the actions of the contractor, e.g., where the Department has approved of the price, or where actual purchases are made under contracts which permit exhorbitant overhead costs to be added on to the price of the part. The key to prosecuting any particular case will be whether the contractor has done anything to deceive DoD in entering into an agreement to buy spare parts. When the Department has knowingly, although imprudently, entered into an agreement with full disclosure by the contractor of the prices, a criminal prosecution cannot be sustained due to lack of intent.

In order to avoid these problems in the future it will be necessary to improve contract drafting and administration and to more closely screen parts lists to determine availability prior to making additional purchases.

Where there is evidence of criminal action by a contractor the case will be referred to the Department of Justice/Department of Defense Procurement Fraud Unit. The unit was established to improve the government's overall effort to investigate and prosecute DoD contractors engaged in fraud and corruption.

The Secretary of Defense is strongly supporting Inspector General efforts to identify problems associated with the procurement of spare parts and to affect corrective actions. I have enclosed a copy of his most recent direction on this matter (August 29, 1983) which follow-up his ten point program on spare parts procurement announced on July 25, 1983. These efforts include: taking disciplinary action against employees who are negligent in implementing DoD policy; refusing to pay unjustified price increases; and demanding refunds in instances where there have been overcharges. The Defense Contract Audit Agency will work with contract administration offices to strengthen spare parts pricing procedures and assist in the negotiations of major spare parts purchases.

(A copy of the directive follows:)

THE SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

29 AUG 1983

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL
INSPECTOR GENERAL
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Spare Parts Acquisition

My memorandum of July 25, 1983, announced a ten point program on spare parts procurement. Procurement, however, is but one facet of the problem. While the focus of immediate attention, other aspects of the spare parts total acquisition process must get equal scrutiny. Improvement in all areas is essential. While this memorandum deals primarily with acquisition, attention next will be focused on the requirements process, the authorization and appropriation process, and the way we manage readiness and support.

I am resolved that the Department of Defense act decisively. Nothing short of our full management capability and technical expertise must be applied to this challenge. Our credibility before the Congress and the public is at stake. Accordingly, I am now directing the additional actions set forth below.

In some cases I have designated precise milestone dates. This is addressed in the enclosure, as is further discussion of selected actions. I am asking the Deputy Secretary of Defense, as Chairman of the Defense Council on Integrity and Management Improvement, to take the lead in providing overall guidance and coordinating your efforts. I expect him to monitor our progress.

Near-Term Actions (within 90 days)

- Provide resources to induce desirable breakout, effective competitive procurement, and improved pricing in the acquisition of spare parts.
- Apply the DoD Parts Control Program to enhance competition. The optimum use of standard military parts or commercially available parts in development of new systems will be mandatory.
- Accelerate plans for acquisition of computer hardware and software to assist parts control personnel.
- Institute action to identify disparities in spare parts prices within and among various procuring activities.
- Employ value engineering to investigate spare parts where cost or price exceeds intrinsic value.
- Assign more engineering resources to review new reprocurement data packages for adequacy.

- Develop and test a procedure to make breakout of spare parts a factor in source selection for new major systems. Develop new incentive arrangements to reward contractors for cost savings generated by their efforts.

- Negotiate contract data provisions which, as appropriate, reduce contractors' proprietary rights in data. A DAR deviation is approved for this purpose.

- Designate acquisition of spare parts and reprocurement data as an agenda item in Acquisition Strategy Panels, Advance Acquisition Plans, and Acquisition Review Councils.

- Revise performance evaluation factors for acquisition and logistics managers. Include emphasis on spare parts pricing, breakout, competition, and value engineering accomplishments.

- Implement DAR Supplement No. 6, "Replenishment Spare Parts Breakout Program" upon receipt.

- Consider in all contracts, as appropriate, the Government's right and ability to breakout and procure competitively spare parts.

- Discourage use of government specifications and contractor proposed engineering designs that inhibit subsequent competitive procurement of spare parts.

- Continue action on my "Ten-Point" Program to insure that prices paid for all spare parts are fair and reasonable.

- Pursue appropriate refunds or other recoupments vigorously following any audit or other disclosure of incorrect pricing or overcharge.

- Review existing contracts to fully address any and all opportunities for improved pricing of spare parts, including breakout and competition.

- Instruct acquisition personnel to challenge any procurement action for spare parts where estimated or negotiated price appears unrelated to intrinsic value.

Mid-Term Actions (within 180 days)

- Reexamine existing policy on patent and data rights arising under government funded IR&D.

- Expand training curricula to insure proper emphasis, understanding, and technical skill level for all personnel engaged in the acquisition of spare parts.

- Assign special task forces to review existing reprocurement data packages for spare parts with high annual buy/quantity values.

- Evaluate and make recommendations for changes to existing authorization, appropriation, apportionment, budgeting, and financial management practices, and regulations pertaining to acquisition of spares.

- Pursue with appropriate Congressional Committees and their staffs the merit of a two-year authorization for acquisition of replenishment spare parts and consumables.

- Insist upon contract terms and conditions in all future acquisitions that afford more equitable treatment and provide for greater assurance of fair and reasonable prices.

Long-Term Actions

- Automate data repositories to improve the acquisition, storage, update, and retrieval of reprocurement and technical data.

- o Evaluate and assess accomplishments under the near- and mid-term actions for additional policy direction, as appropriate.

I am aware of the burdens these actions impose upon you and your staffs. However, we cannot defer action until such time as additional resources might be authorized and become available. Your full cooperation is appreciated.

Enclosure

Caspar W. Weinberger

OPTIMIZE USE OF STANDARD MILITARY PARTS OR COMMERCIALLY AVAILABLE PARTS IN DEVELOPMENT OF NEW SYSTEMS

The DoD Parts Control Program promotes use of military preferred standard piece-parts during engineering design, development, production, or modification of equipments and major weapon systems. The program fosters standardization, which leads to greater demand for standard parts, reduction in varieties of parts in inventory, resultant increased production runs, and competition through multiple sourcing. It is accomplished through the engineering review of non-standard commercial parts and recommended preferred standard item replacements. DoDI 4120.19, Parts Control Program (PCP), is required in contracts for major weapon systems, end items of equipment where logistics support is required, and in which acquisition managers foresee appreciable life-cycle cost savings.

I am directing action to require mandatory application of the DoD Parts Control Program (at the present time approximately 40 percent of weapon system contracts are using the program on a voluntary basis). DoDI 4120.19 shall be revised to reflect the change from a voluntary to a mandatory program.

DLA should proceed with plans for acquisition of computer hardware/software to assist parts control personnel to achieve real time processing. Submission of the DLA plans for accomplishment is directed within 60 days.

GIVE ACQUISITION OF SPARE PARTS THE NECESSARY ATTENTION

On August 2,1983 I issued a revised regulation (DAR Supplement No. 6) dealing with the breakout of spare parts. It provides procedures for screening requirements for replenishment spare parts to break them away from systems contractors for the purpose of buying them competitively or from the actual manufacturer (breakout). The regulation enhances the cost saving objective of breakout, contains substantive revisions of a number of procedures, and incorporates features that increase the utility of resources devoted to the screening process. You will insure that your personnel immediately implement the designed purpose of this regulation as a matter of highest priority.

USE VALUE ENGINEERING TO INVESTIGATE PARTS WHERE COST EXCEEDS INTRINSIC VALUE

The objective of Value Engineering (VE) is to identify more cost effective alternatives. An effective spare parts value engineering program must include procedures to identify those spares whose price is excessive and appropriate action to reduce unnecessary cost. Accordingly, each DoD component will:

- Within 60 days institute at each spares buying activity procedures to "flag" price disparities in spare part contracts.

- Assign adequate value engineering resources to review spares purchases and reduce excesses. Use ad hoc government VE teams, contract VE services, DoD personnel who currently have VE as a primary or collateral responsibility, and contract teams funded by the VE program clause of the DAR.

- Revise the current Value Engineering Incentive DAR clause for all supply and service contracts of $100,000 or more to mandate its use in contracts less than $100,000 for spare parts. Effective immediately, contracts for spare parts and repair kits of $25,000 or more for other than standard commercial parts will contain a VE incentive clause.

INSURE THAT PRICES PAID FOR PARTS ARE FAIR AND REASONABLE

Offer incentives to employees to increase competitive bidding and reward those who vigorously pursue cost savings. This requires beneficial suggestion/VE award programs specifically tailored to the acquisition of spare parts.

Take stern disciplinary action with those employees engaged in the acquisition process who are negligent in implementing our procedures. Performance in this area should be a scored evaluation factor in performance ratings.

Alert defense contractors to the seriousness of the problem and of our firm intention to keep prices under control. I expect implementation of an ongoing management procedure to insure continuing high level attention to this area. Action shall be taken to insure the high-level contractor management mirrors this effort.

Task Competition Advocates in all DoD components to challenge spares orders not made competively or which appear to be excessively priced. Competition advocates must be provided sufficient authority to intervene directly in instances where policy is not being appropriately implemented. A draft DoD directive on competition advocates will be prepared and distributed for comment within 90 days.

ACQUIRE REPROCUREMENT TECHNICAL DATA UNENCUMBERED BY NEEDLESS OR IMPROPER PROPRIETARY RESTRICTIONS

As part of the evaluation and source selection process, specific consideration will be given to breakout and competitive procurement of spare parts. Our ability, including cost to the Government, to acquire reprocurement data packages with unlimited rights thereto (given the nature and propriety of the prospective contractors' asserted rights) will be evaluated.

Examine and advise me of your views as to existing policy dealing with the rights accruing to the Government under IR&D.

Negotiate firm dates in new contracts by which "unrestricted" use of data encumbered by the contractor's background patents and/or data rights for data initially developed at its expenses will be available. Particular attention should be given to those cases where the Government has borne the major cost of development.

AUTOMATE DATA REPOSITORIES TO IMPROVE THE ACQUISITION, STORAGE, AND RETRIEVAL OF TECHNICAL DATA

With state-of-the-art technology, the automated data repositories can:

- Eliminate bottlenecks in paper/microfilm manual identification, retrieval, and individual reproduction operations.

- Reduce the cost of repository operations and the cost of data.

- Permit direct interface with industry and among the Services in computer-aided design (CAD) and computer aid manufacturing (CAM) systems.

- Provide for computerized review and inspection, indexing, and verification of "rights in data" claims.

- Provide for timely identification of the appropriate data and its subsequent delivery to the user or buyer via telecommunications.

The Services will support and fund the ongoing Tri-Service/Joint Committee on Printing effort to acquire and install prototype repositories with a target date for completion of FY 1987. The standard system specification has been defined. Plans to be supported by the Services include, subject to availability of funds:

- Army. Installation at MICOM and CECOM in September 1984.

- Air Force. Complement Army contract, and fund in FY 1984 for one system.

- Navy. Installation at NPFC in September 1984. Approve of the NAVAIR system for implementation at the NAVAIR central repository.

ELIMINATE DISINCENTIVES ON INDUSTRY TO FACILITATE BREAKOUT AND COMPETITION OF SPARE PARTS

What we do up front in the development of major systems and in obtaining adequate reprocurement technical data at the outset of production profoundly influences our ability to break out spare parts for procurement from other sources. Clearly lacking is a motivational response needed from our major systems developers. Absent that, we will have simply modest improvement with no assurance that such improvement will continue. Therefore, we are considering two new efforts.

First, we must make breakout of spare parts a factor in the source selection of a major weapons systems developer. Second, we must couple this with incentive arrangements that provide the contractor a share in cost savings generated by his efforts. Such procedures will be developed for test at the earliest practicable date. These procedures have the potential of assuring long-term application and benefit without the need to increase significantly manpower resources, without substantially adding to acquisition costs, and without unduly prolonging procurement leadtime.

Following is a draft concept paper that discusses this in greater detail. I wish your constructive comments within 30 days with the full intention of designating a joint service and DLA task group to develop a comprehensive test program within 90 days. Full-scale implementation will be accomplished following evaluation.

"DRAFT" CONCEPT PAPER

SUBJECT: Enhancing (1) breakout and (2) competitive solicitation and procurement of both initial and replenishment spare parts for new major systems

PROBLEM: The cost of acquiring the subject parts is increased by any one or a combination of the following:

- existing in-house "cost models" that distort prices paid for spare parts by inappropriately or disproportionately allocating the prime contractor's costs for engineering, manufacturing, material handling, G&A, and plant-wide variances as well as associated overhead charges and profit

- tiering of vendor acquired spare part prices merely flowing through the prime contractor with the latter's overhead and profit

- absence of effective competition for subcontracted items and vendor furnished parts
- proprietary rights, data right, and patent right limitations
- incomplete, inaccurate, and/or obsolete reprocurement data packages
- insufficient procurement leadtime
- dated and/or incomplete knowledge of the industrial base
- institutional biases on the part of industry and government
- incomplete and/or inadequate "make-or-buy" program reviews
- disincentives on contractors to break out vendor acquired parts for direct acquisition by the government
- lack of positive incentives on contractors to break out vendor acquired parts for direct acquisition by the government
- lack of government personnel resources with the appropriate skills and training to get the job done
- lack of high level management attention in industry
- lack of high level management attention in government
- prior course of dealings, industry/trade practices, and tradition
- late apportionment of fiscal year funds for O&M acquisition
- incomplete, untimely, and inadequate acquisition planning
- low volume buys
- disproportionate emphasis on meeting operational requirements

DISCUSSION: The spare parts "problem" is not any one problem. It is many problems that vary in type, combination, and impact depending upon:

- the point in time during the acquisition process when the issue is being addressed
- the type, nature, and quantity of the spare parts at issue
- the system that is being supported

There is no one solution. That is not to say, however, there is no solution. The problem area has to be broken down into functionally related components. There are:

- problem(s) that are inbeing
- problem(s) we are presently evolving
- problem(s) that will arise in the future

This concept paper focuses primarily on how to avoid the problems in the future. There is some immediate transference possible, and that is encouraged.

ANALYSIS: Any conventional solution is invariably labor intensive. That makes it somewhat less than viable, irrespective of conceptual appeal. A solution to the problem is required that is:

- not labor intensive in terms of government personnel
- predisposed to alter in some meaningful way our traditional approaches
- acceptable to industry, for the problem cannot be solved by the government alone

- o cost effective in a way that is readily apparent and demonstrable
- o easy to communicate to the acquisition work force, where the rubber hits the road
- o not so complex as to be difficult to comprehend or to implement
- o susceptible of being implemented within all of DoD with a high degree of uniformity so as to preserve the concept of "one face to industry"
- o not too costly, nor should it require substantial investments of program funds to initiate and/or accomplish
- o not contrary to the principle of decentralized management and the preservation of decisionmaking authority, flexibility, and discretion at the lowest possible level
- o financially beneficial to both industry and government

The solution dictates that it be approached early in the acquisition process while there is still effective competition to assure a reasonable degree of industry responsiveness and reasonable attendant costs. The techniques employed must be compatible with existing acquisition practices and require no new authorities, laws, or regulations. Additionally, it is at the earlier stages of the acquisition process where the leverage of any incentive is greatest because so much of the program is still prospective. The "work" must be accomplished by contractor personnel but not as "services." There must be on-going visibility by high level management in both industry and government. The rewards to industry must be immediate, near term, and long term; all three are required. The same holds true for the government. The rewards enjoyed must not be at the expense of otherwise realizable profits and/or incentive fees in a way that merely reapportions the profit pool. The payoff must be big to attract and to hold the continuing attention of all- -including the Congress and the public. Lastly, implementation in the very near term should be possible.

SOLUTION: All basic tenets must be employed to be effective, but the quantitative measures should be assigned to, or reserved for, the discretion of decentralized management and planned on a case-by-case basis. The basic tenets are:

1. The competition leading to award of FSED for a major system should turn, in part, on the prospective prime contractor's technical and management proposals addressing such things as:
   - o Make-or-Buy Plan
   - o Engineering Design in terms of furthering utilization of commercially available components, non-proprietary items, competitively available vendor material, military standard parts
   - o Management Plan to facilitate:
     - early breakout
     - parallel competitive sources for vendor items
     - accomplishment of the aforementioned engineering design
     - review of technical data packages for completeness, suitability, currency, and relief from inappropriate proprietary restrictions
     - enhancement of the competitive vendor base and the establishment of new vendor sources during FSED and the early phases of initial productions
2. The prime contractor's additional engineering, design, and management effort to accomplish the objectives set forth in his proposal(s) for this express purpose should be a separately priced line item in the pertinent FSED contract.

3. The instant FSED contract should provide for an Award Fee modeled on the "report card" concept. It should provide for an award fee determination panel composed of high levels of government management; periodic evaluations to influence prospective behavior; written critique by the Service Secretary to the CEO; the immediate payment of all award fee amounts earned; and no rights of appeal.

4. The instant FSED contract should provide for a separate Memorandum of Agreement (MOA) between the prime contractor and the government. It would be negotiated with all offerors while still in proposal evaluation and source selection. The purpose for the MOA is to get advance agreement on the amount of the royalty and/or the licensing fee to be included in selected vendor prices. The fee arrangement would be expressed as a percentage of the item price paid by the government. Then, should those vendors later be awarded a contract directly by the government, the agreed-upon fee (having been included in the price) would be paid to the prime contractor by the vendor. A licensing fee would be proper if contract effort involved utilization of the prime contractor's proprietary data; a royalty fee would be proper when the prime's propietary data is not a factor. The MOA would prescribe the term of years within which the agreement would be in force and on whom it would be binding. Any fees paid pursuant thereto would be in the purchase price of the vendor item--hence, it would be borne by the user. However, care must be exercised to avoid payment of royalty fees for break out that would and should have been otherwise accomplished as part of the contractor's normal responsibilities.

CONCLUSION: The proposed solution offers an immediate incentive. It can influence and even prove a determinant in proposal evaluation and source selection for a major system. It focuses attention on the problem early on, before design is complete and a subcontractor/vendor matrix established. By directly funding the contractor's associated effort, it does not increase his overhead costs and also becomes a direct cost on which other overhead can be charged and profit earned. However, as a direct cost, it must be done and done in accordance with the contract's terms and conditions. It is subject to government oversight. The award fee offers a near-term incentive while focusing high level management attention on the effort. The licensing and/or royalty fee arrangement offers a long-term and continuing incentive to make the program succeed because it returns profits to the prime without any investment of capital or on-going utilization of production resources. The arrangement can also be flowed down. It eradicates by offset all the incentives presently in-place that inhibit breakout, competition, and contractor assistance. It employs practices well known to the contracting community both in the private and public sector. It need await no special approvals or authorities to be tested or implemented. It does not add to procurement leadtime and, in competition, it should add little or no cost to FSED.

RECOMMENDATION: Immediately develop a TEST PROGRAM leading to full-scale implementation. The initial resultant guidance should be expressed in no greater detail than policy direction as would be found in a Directive or an Instruction. At an appropriate time, suitable DAR coverage could be published.

AIR FORCE ACTIONS AGAINST FRAUD CASES

General HANSEN. If I might just interject?

Senator RUDMAN. General Hansen, I would be glad to hear from you.

General HANSEN. Speaking strictly for the Air Force, there are several instances that we can point to, where overpricing or improper pricing has been identified by the services.

The first step is generally suspension or disbarment of the company. Then we turn it over to the authorities and, in the case where Senator D'Amato pointed out the BH aircraft, that is under criminal investigation.

So there are several cases right now that are being looked at for fraud and possible criminal prosecution.

Senator RUDMAN. Do you agree with me, General Hansen? You have certainly had a lot of experience in this area. The Air Force generally has done a reasonably good job in procurement. There have been glaring examples where there have been problems, but generally the Air Force Systems Command and others that I have looked at have done a good job.

But do you feel that by elevating, if you will, the costs and the risks involved to those who wish to arbitrarily rip off the Government, that we are going to get a little bit more conformity with the system?

General HANSEN. There is no doubt about it. Perhaps we are guilty of not, perhaps, publicizing or advertising those actions that we have taken—and I believe that sometime today there will be an announcement made in the case of that area that Senator D'Amato has been working on.

Senator RUDMAN. Let me come back——

Senator STEVENS. Senator, may I interrupt?

Senator RUDMAN. Certainly.

Senator STEVENS. I have been called to the floor. We are trying to wind up today, and the time factor here has been a difficult one today. I do want to announce that we intend to continue this hearing at 2 o'clock on the 13th when we return. I just do not think that the members have had an opportunity to go into it in depth, and I would appreciate it if you would continue it today.

Senator RUDMAN. We will continue it on through Senator D'Amato's round of questioning, and then we will recess it to that date.

Senator STEVENS. Thank you very much.

Senator RUDMAN [presiding]. Thank you, Mr. Chairman.

AREAS OF PROCUREMENT ACTIONS

Ms. Gilleece, I want to ask you this question: Am I correct in the information that I have, that even though the proportion of procurement actions is predominantly in the spare parts area, as you have stated, that the predominant amount of management resources are in the procurement area involved with major systems?

Ms. GILLEECE. Senator, I do not mean to be nonresponsive, but essentially I do not deal with manpower. If, however, you are purchasing a major system, you also must take into consideration the spare parts to support that system.

Senator RUDMAN. Well, the committee staff looking at these numbers finds that we tend to be understaffed in that area. Maybe some of the service people would like to answer that question—either Admiral Sansone, General Stallings, or General Hansen.

Why do you not go first, Admiral?

Admiral SANSONE. I would like to try and address that question, if I may, sir. The Navy has two major inventory control points for the purchase of spare parts—the Ships' Parts Control Center at Mechanicsburg, and the Aviation Supply Office at Philadelphia. Both of those activities are commanded by a flag officer.

The levels of management attention in both of these activities range from the senior executive service and the flag officer to the clerk rating. In the Navy, as far as spare parts procurement, those parts that are in the supply system, I believe sir, the answer is that there is proper management distribution vis-a-vis weapons systems.

Senator RUDMAN. General Stallings, would you like to respond to the question?

General STALLINGS. Sir, we have five major subordinate commands that are in the business of procuring spare parts to support our weapons systems that are in the field. As I try to think about your question of people that actually buy the spares versus those people that buy the end item, the major weapons system, I think in all candor I would have to say to you that the people who buy the spares are normally the younger procurement people coming along. So, therefore, I think that they go through a learning process before they become part of a team that buys a major weapons system.

I have to say that those folks are in a training ground. We have a high turnover of the number of people that go into these jobs. Therefore, they are younger procurement workers with not as many years of experience as the people who we would entrust with buying a major weapons system.

Senator RUDMAN. Are there as many younger procurement workers, however, proportionately for the number of procurement actions that they have to execute compared to those involved with the major systems? Is that a hard question to answer?

General STALLINGS. That is a hard question to answer, but I would have to say to you, in all candor, if you were to take it on a ratio, there are probably not as many.

SPARE PARTS PROCUREMENT PERSONNEL

It is impossible to accurately quantify people to spare parts procurement; however, a data collection effort is underway and a more complete answer will be available by September 13, 1983.

Weapons systems procurements, because of their greater complexities, draw the more highly trained and experienced people. Let us point out, however, that at many locations spare parts are bought at all levels of the work force. Therefore, if we compare weapons systems procurements to other categories to include spare parts, the others/spare parts would far outweigh weapons systems in quantities of procurement actions [PA]. Also, the procurement personnel dealing with the spare parts and others category usually handle more procurement actions and use simplified purchase pro-

cedures when appropriate. These personnel are guided by the same levels of management as weapons systems; that is, senior buyers, contracting officers, branch, and division senior level management. The simplified purchase procedures—small purchases—are often used as a training ground for later weapons system procurement experience. The proportion of spare parts versus weapons systems procurements and personnel involved in each will be addressed at a later date.

Senator RUDMAN. Now, that is something for the record I would like all three of the officers here to answer, General Hansen, and then I will get back to anything else you would like to say, Admiral.

DECREASE IN PROCUREMENT PERSONNEL

General HANSEN. Sir, I would like to say that since 1963 our procurement people have decreased by 47 percent. And if you look at today's spares' budget, in 1978 we were at—and this is the Air Force—$1.8 billion, and we are looking at a $5.2 billion program that is on the floor right now. So it has had a tremendous impact.

The largest problem we are facing today as we look to solve the spares' pricing problem is manpower and qualified people. We are taking it out of our hides to do the price breakout and to do the competition, and things of that nature.

Senator RUDMAN. Well, General Hansen, I want to tell you something. I have sat on this committee since I got here in 1981. That is the first time I have heard that, and I appreciate your statement very much. Quite honestly, we tend to get involved around here with the things that tend to be exciting, and interesting. Things that make the evening news like the MX, the Midgetman, the B–1, chemical warfare, and let us cut the Defense budget. With that kind of a substantive statement I think that I will suggest to the chairman that in September we convene a major hearing. With all three of the services we can start looking at the systemic problems in the procurement process of which you have just identified as one. I think General Stallings has certainly pointed to another.

It seems to me—and I think it would certainly seem to anyone who has listened to this hearing—that we have got some problems here. We can have all the initiatives, the Secretary can publish them, we can engrave them in bronze in front of the Pentagon, but unless we have competent people in adequate numbers, well motivated, well compensated, to implement those initiatives, then frankly we just might as well drop them all in the Potomac for the amount of good they are going to do.

Admiral Sansone.

Admiral SANSONE. Yes, sir. General Stallings triggered a thought in my mind that I probably should use to amplify what I stated about the inventory control point.

Indeed, the inventory control points must have qualified people and in the numbers required, I addressed my point to the management structure. Now if you want to go into the four corners of the purchase shop, then I totally agree with what has already been said.

We do not have enough people, and we do not have the requisite stability in that work force, because it is a training ground. It is a field activity that grows people for major systems.

Senator RUDMAN. You are running major corporations. If they were listed in the Fortune 500, I do not know where they would be, but they would be very high on the list. I would be willing to hazard a guess that IBM, or General Motors, or Ford, or Chrysler probably would not have a purchasing situation where somebody went out and paid $400 for a claw hammer, or $1,150 for a stool cap. I do not think that would happen. Maybe it would, but I just do not think it would. .

General HANSEN. Sir, we never paid the $1,150 for the stool caps. One of our young sergeants stopped that.

Senator RUDMAN. Right. Admiral Grinstead, did you have a comment?

Admiral GRINSTEAD. Yes, sir.

Mr. Chairman, I have followed most of the cases that have been in the paper, and in some ways have either been involved in them previously or are involved in them currently in one way or another.

Most of the cases that you have named here and that it seems to me you are leading to, in my mind where policy issues. We allowed people to buy things from a prime contract that should not have been allowed. In the cases I followed, in most instances that prime contractor told you what you were going to pay, in advance, and suggested you might not want to buy from him.

So there is a policy issue here that I think in the instances you are following has been overlooked.

Senator RUDMAN. I am sure that is true, admiral. There were some other instances which we have not cited for a couple of reasons here. Things that I have not cited that I am personally aware of being subjects of other investigations that I think might be the result of other things.

I think that those who do business with this Government have a certain burden and a certain responsibility. To deal with the Government fairly, even though at arm's length, fairly and in good faith. And it is those kinds of things that really concern me a great deal.

CONFUSION IN PARTS INVENTORY

I want to ask one very brief question of each of you, and then yield to Senator D'Amato. I would like a brief answer. There have been allegations that, with all of our computer systems, that no one really knows which parts we actually have, where they are, and which require special purchase.

Would you say for the Navy that is true or false?

Admiral SANSONE. Mr. Chairman, I do not believe that I can answer the question for the entire Navy. I will give you an answer from my personal experience. In the supply system we have computer installations that generate our requirements, giving us the information to make buys, and the destinations as to where they are going are well known.

Do we know what we have, and do we know how much? I think the answer to that, in my personal experience, is: Yes, sir.

Senator RUDMAN. General Stallings.

General STALLINGS. I am not sure I can say completely for the Army that——

Senator RUDMAN. I am not talking about down to the last canteen.

General STALLINGS. Yes, sir. I understand that. Again, I guess, as Admiral Sansone has said, I have to use my own experience.

I recently came from the Tank Automotive Command located in Warren, Mich., which has a very large National Inventory Control Point [NICP] and procures almost 50 percent of the Army's repair parts. We deal with three large supply depots—Red River, Sharpe Army Depot, and New Cumberland. We have a very extensive computer system. It has been modernized. The software is pretty good. So I think that I have to say to you that, on balance, we have a good system for recording all the requirements that come in from the field for spares; that our inventory system is adequate; and that it is working satisfactorily.

Could it be improved by more modern technology? I am sure it could.

Senator RUDMAN. General Hansen.

General HANSEN. Sir, I have an advantage over my contemporaries in that this is mainly the job that I deal in. I am not a procurement officer; I am a logistician. I can say with a 100-percent "Yes" that the Air Force has good control over its spare parts. We have a base-level computer system that tracks by individual unit, and our inventory confidence is 99 percent. So we have very, very good control of our spares and repairables right down to base level.

Senator RUDMAN. Thank you.

Senator D'Amato, do you have any questions?

Senator D'AMATO. Mr. Chairman, first I would ask that my opening statement be included in the record as if read in its entirety.

Senator RUDMAN. Without objection, it will be included.

NEW PROCUREMENT REGULATIONS UNDERTAKEN

Senator D'AMATO. Madam Secretary, I am wondering if you could indicate to us, as a result of Secretary Weinberger's 10-point plan, what new procurement regulations have been undertaken or have been written, have been promulgated, as a result of the Secretary's 10-point program?

Ms. GILLEECE. Senator D'Amato, the President issued an Executive Order last year, 12352, on March 17, 1982, focusing directly in the procurement area.

One of the items that he directed that we do was to develop a Federal acquisition regulation [FAR]. The three major procurement agencies, GSA, NASA, and DOD, completed the writing of that Federal acquisition regulation on June 30 of this year.

The Defense Acquisition Regulation Council is currently writing the Department of Defense supplement. The supplemental will be a regulation which does not conflict with the FAR, but which takes into consideration the specific needs of the Department of Defense.

During the course of the writing of that regulation, the Secretary's memorandum of July 25, will be taken into consideration.

Senator D'AMATO. When do you anticipate that will be made public and implemented?

Ms. GILLEECE. The implementation will be April 1, 1984. It is not an easy system to perturbate, sir.

Senator D'AMATO. I would just suggest to you that I would think, and I would hope, that you would get a sense of how important this committee and its members feel this situation is.

Senator Kasten indicated to you that the fact is that the national confidence that had to come about and the consensus that we need a strong military, I think, is beginning to become eroded. When the kinds of examples in these areas surface repeatedly, I would also suggest that it is an oversimplification to suggest that these are isolated instances; that they are replete; that the system needs a comprehensive overhaul, whether it is the result of honest error or whether it is because of the policy decisions that create these situations, as opposed to outright fraud—and I would also suggest that there is a good bit of that, as my colleague from New Hampshire suggests.

So I would hope that the Secretary's 10-point program is not going to become a put-off in the implementation of rules and regulations to get this underway until April.

Ms. GILLEECE. Senator, I answered your specific question regarding the regulations. However, many of these 10 points do not require a change of regulation. They are, as I suggested before, to be implemented immediately by the services. I think that the feeling of the panel here is that they will be implemented by the services immediately.

PERSONNEL FAILURES AT DCAA

Senator D'AMATO. Well, I have no problem with the services. I want to tell you something, though, and I hope you bring this back. I think, and again I will say it, the four top people at the Defense Contract Audit Agency, in my opinion, should be fired—absolutely fired.

I do not just take that one case and that one example of what they did to that individual. It was a day-after-day, month-after-month harassment of a man for doing his job. And they were—all four of them—in complicity with one another. I think it is an absolute total disgrace—and I will get to some of the kinds of things.

When we talk about auditing and overhead, they are the guys who are supposed to be doing this; not the Inspector General. They are the guys who are supposed to be checking into the overhead as to the legitimacy of the profits, et cetera. And what are they doing? They are doing nothing. That is part of the old boy network. But if one of their auditors steps on somebody's toes, they are there to push him out, transfer him, get rid of him. I want to tell you something. There was a question asked as to how do you get ahead? You get ahead by rolling ahead, being part of the system. That is how it is. You have got to be incredible not to see that.

Any poor person who saw what a respected auditor who worked in this area for years, who was respected, had the highest ratings,

what took place to him once he blew the whistle, any young person would just say, "just keep quiet. Make believe. Do not say anything, because they are going to get you."

And were it not for the fact that maybe he did have a couple of friends, and maybe he was at the end of his career, and even three times he went ahead and put in his resignation because they would come to him and say, "do you want the 182 days back of vacation time?" "Well, you do that and they fix your hours." What nonsense.

I would suggest to you, Madam Secretary—and I do get a little bit upset about this—I am not letting up. I have just begun with these guys. They should be here. We should have a total investigation as to the manner and the conduct with which they discharged their duty and their jobs. I just get—it is absolutely incredible.

And then I get back reports—and I am going to ask our Air Force people a couple of questions on this—reports that when we do have these incredible cost increases, 10, 15, 20 times over and above the original cost of the part, we get a report that says the old price was based on old numbers; the old price is not representative of costs.

The Air Force just sends us that answer. Well, it seems to me that the Defense Contract Audit Agency, when they see any of these things, particularly when they become public, should go down there and make an agency check and find out. We just take what the contractor says. the contractor just says, well, this is not representative of the old price, so we get these huge price increases.

It just feeds on itself. I would suggest to you, because I vote for those weapons systems that are somewhat controversial, and I have supported them consistently, but it is going to be pretty tough for a Senator like myself to be able to support them if the confidence of the public erodes and they see that these are wasteful. Because it goes beyond just mere spare parts.

People say, you can pay $400 for a hammer, which they understand—how much more are you paying for an exotic weapons system, and an MX system, and Midgetman, Minuteman, whatever you want to call them, if they do not understand. Are we paying thousands of times over and above?

This is what it comes down to. We are going to lose public confidence in terms of our defense efforts. I would think that that would be rather tragic. I do not think anybody here wants to see that take place. But that is what is taking place. It is taking place back home; it takes place down here. And given the fact that there are enough people who say we should not be engaged in a defense buildup in any event, it is self-defeating.

STATUS OF N. V. PHILLIPS AND GREEK NATIONALE QUESTION

Mr. Chairman, I would like to ask a couple of quick questions. On July 20, 1983, I wrote Secretary Orr requesting immediate suspension of all current contracts between the Air Force and N. V. Phillips of the Netherlands and for Greek Nationale—that is a Belgium corporation—on the basis of reports in FBI affidavits that their North American Agent, Mr. Alfred T. Stanger, had violated

Federal law in the process of committing industrial espionage against Pratt-Whitney to obtain spare parts prices and technical data.

Now subsequent to that letter, I was given verbal assurance that the Air Force was moving expeditiously on my request, and General Hansen, you said that you might have something.

What is the status of the Air Force's review of the N. V. Phillips and Greek Nationale question?

General HANSEN. I had hoped that by 10 o'clock this morning that I would be able to address that straight on, but I have been told that that announcement will be made at 2 o'clock, and that is not within my area of responsibility. But I think that you will find that the Air Force has been very, very responsive to that situation that involved BH Aircraft and Mr. Stanger.

Senator D'AMATO. OK. Because you understand what I want. I want to know how many dollars, worth of contracts we have pending with those two companies, and I think—and we talked about suspension, disbarment, et cetera—they are prime candidates for that.

Let them come forward and justify their utilization of a guy involved in industrial espionage. We do not owe them any duty to continue maybe hundreds of millions of dollars' worth of contracts. And I still think it is a rather easy matter to push a computer button and say: How many contracts do we have? How many dollars' worth?

I have asked for that information, General.

General HANSEN. He has been disbarred, sir. And Mr. Stanger has been disbarred from the Air Force, and the criminal actions are underway and we will be able to go into more detail later.

Senator D'AMATO. Mr. Stanger has been disbarred?

General HANSEN. Yes, sir.

Senator D'AMATO. What about his two clients who profited as a result of that?

General HANSEN. Yes, sir. Eight personnel are involved.

Senator D'AMATO. Eight?

General HANSEN. Eight. There are eight people involved——

Mr. KEMP. Sir, neither Fabre nor Phillips has been suspended. The actions that have been taken are suspension actions. The suspension actions were signed on the second of this week, August 2. We took action against all of Mr. Stanger's affiliated organizations.

We did not have, nor do we have at this time, adequate evidence upon which to make a disbarment or suspension action against either Phillips nor Fabre.

Senator RUDMAN. Would the Senator yield?

Would the gentleman identify himself for the record?

Mr. KEMP. Yes, sir. I am the Associate Director of Contracting Manufacturing Policy, Headquarters, Air Force. My name is Ira Kemp, K-e-m-p.

Senator RUDMAN. Thank you, Mr. Kemp.

DOLLAR AMOUNTS OF CONTRACTS

Senator D'AMATO. General, I asked for some additional information. That has to do with what are the dollar amounts of contracts

that we have with these two companies. Can I get that? How long will that take? Is that classified information?

General HANSEN. No, sir, that is not.

Senator D'AMATO. Well, it is about a month now.

General HANSEN. Yes, sir. That letter is being worked through our general counsel, and I represent the procurement and logistics portion of it, but I will certainly take that back and ensure that you get an answer post haste.

Senator D'AMATO. This is about a month.

General HANSEN. Yes, sir. And I am aware of your letters.

Senator D'AMATO. You don't think I am going to go away.

General HANSEN. No, sir. [Laughter.]

Senator D'AMATO. You do not think I am going to stop.

General HANSEN. No, sir.

Senator D'AMATO. I will just build a bigger and better fire. I am telling you, it just gets going in me.

General HANSEN. Sir, I have got the message, and I will carry that back.

Senator D'AMATO. I will make more trouble. I am just going to keep on, and I am going to keep persisting and keep going.

General HANSEN. I do know that the Defense Department is very concerned about it.

Senator D'AMATO. And I am not satisfied that Stanger, all right, and his companies have been disbarred. That is just the beginning. We are going to get down to the bottom of this business with N. V. Phillips.

General HANSEN. I hope you understand that debarment is the only action that we can take. The criminal action is being looked at.

Senator D'AMATO. Well, I know that that is an old coverup. We cannot do one thing until the other thing is completed. That is an old story. I have heard that since I have been a town supervisor in the county. "Oh, we have to wait until the guy is prosecuted." I do not know about that.

Since when are we worried about suspension of a contract with these guys who have been underbidding our American people consistently by $5 or $10 as a result of industrial espionage? Let them come forward and say they did not profit, and that those contracts should be kept in full force and effect. You would not run a business that way.

General HANSEN. I have no insight into the FBI's status of investigation.

Senator D'AMATO. That is nothing more than a shield. The fact that the FBI is investigating should have no basis in fact in determining whether or not we should suspend at this time contract activities relating to various contracts that these corporations may have obtained or did obtain as a result of industrial espionage as a result of one of their agents who works for them.

Now that is what the general counsel keeps telling me, we have to wait for the completion of that investigation.

Senator RUDMAN. Would the Senator from New York yield?

Senator D'AMATO. Yes.

Senator RUDMAN. Would we possibly expedite the matter? Would the Senator from New York be interested—if we made this request

. . . renewing the request not only in the Senator from New York's name, but in the name of the subcommittee, that the subcommittee would like this information supplied as part of this record?

Senator D'AMATO. Absolutely.

Senator RUDMAN. All right, we will do that.

Senator D'AMATO. And I thank the Senator for his suggestion.

[The information follows:]

N. V. PHILLIPS AND GREEK NATIONALE QUESTION

Question. I would like to ask a couple of quick questions. On July 20th, 1983, I wrote Secretary Orr requesting immediate suspension of all current contracts between the Air Force and N. V. Phillips of the Netherlands and for Greek Nationale—that is a Belgium Corporation—on the basis reports in FBI affidavits that their North American Agent, Mr. Alfred T. Stanger, had violated federal law in the process of committing industrial espionage against Pratt-Whitney to obtain spare parts' prices and technical data. Now subsequent to that letter, I was given verbal assurance that the Air Force was moving expeditiously on my request and General Hansen, you said that you might have something. What is the status of the Air Force's review of the N.V. Phillips and Greek Nationale question? . . . Because you understand what I want. I want to know how many dollars worth of contracts we have pending with those two companies, and I think—and we talked about suspension, debarment, et cetera—they are prime candidates for that. Let them come forward and justify their utilization of a guy involved in industrial espionage. We do not owe them any duty to continue maybe hundreds of millions of dollars worth of contracts. And I still think it is a rather easy matter to push a computer button and say: How many contracts do we have? How many dollars worth? I have asked for that information, General . . .

. . . General, I asked for some additional information. That has to do with what are the dollar amounts of contracts that we have with these two companies. Can I get that? How long will that take? Is that classified information? . . .

Answer. The information concerning N. V. Phillips and Fabrique Nationale currently available to the Air Force is not evidence adequate to warrant suspension or debarment. The Air Force currently has 13 contracts totaling approximately $27,461,875 with N. V. Phillips and 18 contracts totaling approximately $45,670,093 with Fabrique Nationale.

PRICE INCREASE ON AIR FORCE SPARE PARTS

Senator D'AMATO. General, let me ask you: On July 12, 1982, Mr. Robert S. Hancock, an Air Force official at the Oklahoma City Air Logistics Center, issued a report which listed 34 spare parts which had experienced cost increases over 300 percent.

The Air Force, on March 14, 1983, stated, "The prices cited by Mr. Hancock were not valid, or that the price increases were proper in all but one of 34 cases." What actions did the Air Force take to review to responses provided by Pratt & Whitney to Air Force requests for explanations of these price increases? Well, Pratt's explanations are subject to independent audits.

General HANSEN. Yes, sir. The 34 parts that were mentioned were actually audited by the Air Force. The group from AFLC, which is the headquarters of Oklahoma City, did an analysis. We found out that in many cases those parts had not been procured for quite some period of time. It was not an actual overpricing. It was more a technical ordering type overpricing. But that was an independent Air Force verification of those 34 parts.

Senator D'AMATO. I am going to ask you, General, if you would not—I think this is kind of an almost classic case where Pratt & Whitney said, this is our reason, these are our explanations, and it appears to this Senator—this is the first I have heard of your inde-

pendent audit—that they were accepted. We just accepted these explanations.

Now if that is not the case, fine. You tell me you had an independent audit?

General HANSEN. Yes, sir.

Senator D'AMATO. I would suggest, Mr. Chairman, that we might again ask for reevaluation of that audit. Because when I see the kinds of things, the spacer 44 cents that admittedly is 3 years later, $4.29, I question it.

General HANSEN. In some cases, the material has been changed in some of those parts.

Senator D'AMATO. Of course you have to understand that I have adopted an attitude, because I heard a general tell me—I do not think it was you—that the spare parts in the BH case, that the price increase of 140 percent was occasioned because of the alloys, et cetera.

General HANSEN. Yes, sir.

Senator D'AMATO. It almost seems to me that we have developed that mentality.

General HANSEN. Sir, we can address each one of those individuals parts.

Senator D'AMATO. I just think it would behoove us, I would like to see it at least myself——

Senator RUDMAN. Why do we not have the subcommittee staff get together with the Air Force people and prepare what the Senator from New York would like in terms of evaluation of the audit.

General HANSEN. I can work directly with you, Senator.

Senator D'AMATO. The subcommittee staff would be fine.

Thank you very much.

Thank you, Mr. Chairman. Thank you, General.

SUBMITTED QUESTIONS

I have no further questions because the time is growing late. I would ask that I might be allowed—I do have a number of questions, but really time precludes this—if I might be able to submit them for the record.

Senator RUDMAN. They will be submitted for the record by the Senator from New York as well as staff-developed questions to the appropriate witnesses.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

Range of Competitive Procurement

Question: The 1982 actual percentage of competitive procurement demonstrates a range of about 27% for the Navy up to 82% for the Defense Logistics Agency. What accounts for this wide range in competitive procurement percentages?

Answer: Important factors influencing sources in a market place include supply and demand, state-of-the-art, manufacturing expertise, and commercial application. The Defense Logistics Agency generally manages consumable items having common usage. These items often have commercial application and are available from multiple sources. In addition, the DLA manages clothing, petroleum, and raw materials which are also available from multiple sources. On the other hand, the military services generally manage military system unique parts which are less often obtainable from multiple sources.

Price History

Question: Based on the various audit reports released to date, significant price increases do not appear to be limited to any particular group of vendors. Is there an accounting system in place which clearly identifies to a contracting officer when price quotations significantly exceed prior award prices?

Answer: Yes. Every purchasing office maintains records of each transaction and furnishes a price history to the contracting officer for planning and price evaluation purposes.

Spare Parts

QUESTION: "Under what circumstances may a contracting officer procure spare parts without going through the central supply system?"

Answer: The Project or System Manager, not the Contracting Officer, is responsible for the decision as to how to acquire spares and repair parts. Once the Contracting Officer has been tasked to procure, he procures from industry.

DoDD 4140.40, "Provisioning of End Items of Materiel," requires supply support to be obtained from the managing DoD Component, when the parts required are available in the central supply system. DoD 4130.2-M, "Federal Catalog System Policy Manual," requires the DoD Components to screen spares and repair parts to determine whether they are in the central supply system prior to procurement, other than during provisioning (lack of identification data early in the provisioning phase, combined with urgency of need, may impel a decision to acquire spare and repair parts from the prime contractor). In general, Project and System Managers are expected to acquire parts from the Central Supply System, except in extenuating circumstances where the benefits are judged to outweigh the disadvantages of procuring from the prime contractor.

AF CONTRACT DIRECTLY

QUESTION. General Hansen, a recent audit at one of your air logistics centers found that 80 percent of engine spare parts procured from a prime contractor were actually manufactured by subcontractors. Why doesn't the Air Force contract directly with the manufacturer thereby eliminating markup factors and overhead costs?

ANSWER. As a result of these audits, the Air Force is reinforcing its breakout program to aggressively pursue "direct purchase" of spare parts from the actual manufacturer, when it is not possible to purchase them through open competition.

There are circumstances when it is not feasible to buy a part from other than the prime contractor. These include situations involving:

- proprietary data rights;
- missing information on the identity of a subcontractor, the extent of quality assurance exercized by the prime, or the value added by the prime;
- an unstable design which may result in configuration changes within the production leadtime of the part.

Nevertheless, it is Air Force policy to attempt to resolve such inhibiting situations so that direct purchase may be accomplished.

CERTIFICATION OF COMPETITORS

QUESTION: This subcommittee examined a case issue back in February where the Air Force testified that at least 6 months would be required to qualify alternate sources for a relatively basic aircraft engine part. Furthermore, the Air Force found it necessary to seek the certification of the prime contractor to qualify a subvendor. Why does the process take so long for certification of competitors and why must the existing prime contractor be consulted?

ANSWER: Second source qualification is an extremely complex process which varies in a direct ratio with the complexity and/or flight criticality of an item. During source qualification, technical judgements must be made not only as to the part in question, but also as to how the part will interact with the next higher assembly.

Contractor Recommended Codes

Question: The Inspector General's auditors found that the procurement method recommended by a prime contractor was generally accepted without an evaluation. When this condition exists, isn't the competitive status all but foreclosed?

Answer: No. The undesirability of the system has been studied and resulted in a change to the regulation eliminating Contractor Recommended Codes.

The question assumes that contractors recommended only non-competitive status. This is untrue. Approximately 25% of the parts screened and coded are recommended for unrestricted competition. Furthermore, the contractor supported his recommendation with technical data. However, the perception of bias was there.

Therefore, we eliminated contractor recommendations as to procurement method in the breakout program regulation recently issued, DAR Supplement 6. In lieu of recommendation, the

contractor will provide technical information only. This information will enable the government to independently determine the method of procurement.

Professional Procurement Work Force

Question: An OMB management initiative recently downgraded procurement specialists and reclassified them as administrative personnel. Has this change had any effect on the Department's ability to management procurement programs?

Answer: For the past two years, DoD and the civilian agencies have held discussions with the Office of Personnel Management (OPM) regarding occupational standards covering the procurement series. OPM's proposals did not meet the agencies' needs for a professional procurement work force. The issue came to a head last December 8 when it was discussed at the meeting of the Cabinet Council on Management and Administration.

OPM has now agreed to maintain the current grade structure for the procurement work force by recognizing the skills and knowledge required in today's complex acquisition environment. As a result, DoD does not anticipate any significant adverse impact on the procurement work force.

Consumable Spares

Question: Admiral Grinstead, about two years ago, DoD started a test program to centralize the management of all consumable items and parts at the Defense Logistics Agency. Could you give the Committee a status report on this test program?

Answer: On 7 July 1981, Deputy Secretary Carlucci signed a decision paper directing the transfer of inventory management responsibility for 200,000 consumable items of supply from the Military Services to the Defense Logistics Agency (DLA) within six months. The implementation period was subsequently extended to eleven and one-half months by the Assistant Secretary of Defense, Manpower, Reserve Affairs and Logistics (MRA&L).

The transfer was accomplished on an incremental basis of approximately 30,000 items per month. The first increment was transferred on 1 April 1982, with the last transfer of items completed in November 1982.

The transfer was accomplished smoothly in an atmosphere of cooperation between the Services and DLA.

During the transfer DLA's overall supply performance rose from 91.3% in March 1982 to 91.5% in December 1982, and as of 1 July 1983 stands at 92.4%. There have been no reports of adverse impacts by any of the Military Service operating commands.

Question: Explain to the Committee the kinds of parts managed under the test.

Answer: OSD guidance relative to the transfer required that the items selected by the Services be representative of the total range of consumable items managed by the Services. Approximately half of the items were to have been in commodity groups currently managed by DLA and half from the weapons oriented items managed by the Military Services. The items were to require varying degrees of management intensity and include active, inactive and

problem type items. However, although some 91% of the items transferred by the Military Services were coded as stocked items, that is as items which should be procured and stored in Defense Department depots in anticipation of expected requests or demands, in fact only 18.5% met the Defense Logistics Agency's economic criteria for stockage. Only 35% had forecasts of 3 or more demands expected in the next year. Such items are described as inactive or slow movers - not the kind of items that would be expected to have significant impact on readiness. The following is a more detailed profile of the 187,000 items transferred as stocked items:

DLA TOTAL
STOCKED ITEMS

Estimated Demand/Yr	AF	ARMY	MC	NAVY	TOTAL	%
0	40,198	3,821	1,140	14	45,173	24.2
1	8,247	688	59	50,102	59,096	31.6
2	3,988	1,219	29	4,764	10,000	5.3
3	3,949	1,138	23	2,139	7,249	3.9
4	4,108	309	16	1,945	6,378	3.4
5	2,269	625	26	1,242	4,162	2.2
6	2,033	3,332	1	1,138	6,514	3.5
7	2,321	277	3	837	3,443	1.8
8	1,177	361	12	966	2,546	1.4
9	936	431	8	586	1,961	1.0
10	1,509	213	7	575	2,304	1.2
11	761	241	9	467	1,478	0.8
12	914	376	13	436	1,739	0.9
+12	16,747	10,286	239	9,061	36,333	19.4
TOTAL	88,019	23,317	1,600	74,063	186,999	
(%)	(95.5)	(66.3)	(60.5)	(97.8)	(91.0)	
			NON STOCKED CIT ITEMS			
TOTAL	4,108	11,861	1,045	1,663	18,677	
(%)	(4.5)	(33.7)	(39.5)	(2.2)	(9.0)	
			TOTAL CIT ITEMS			
	92,127	35,178	2,645	75,726	205,676	

Question: Is there any pattern of price increase or decrease after the consolidation occurred?

Answer: A sample was taken at one DLA field activity to determine cost growth on transferred items. The results of this sample were submitted to the House Armed Services Investigations Subcommittee in the hearing of 25 May 1983. A random sample was taken of items transferred from one Military Service activity and purchased by DLA from 1 October 1982 to May 1983. The sample consisted of 105 procurement actions (25% of total). Review showed that DLA paid higher prices for 61% of the buys and lower prices on 39%. The items for which higher prices were paid had not been purchased for from 1 to 10 years. Therefore, it would be expected that prices would have increased over these protracted periods. This notwithstanding, in the aggregate and considering both increases and decreases in price, DLA saved over $164,000 on these 105 procurements in comparison to the cost of buying like quantities at the last price paid by the Military Service inventory control point. This sample was considered representative of most of the items transferred since an

additional review showed that nearly one-half of the items had 1 or 0 demands forecasted for 1 or more years.

Question: The Defense Logistics Agency awarded over 82 percent of its FY 1982 contracts competitively compared to the DoD average of about 37 percent. What do you think accounts for the higher proportion of competitive contracts at DLA?

Answer: The FY 1982 competition rate of 82 percent for the Defense Logistics Agency (DLA) includes petroleum products with a rate of 84.4 percent, subsistence products with a rate of 89.7 percent and clothing and textile products with a rate of 98 percent. All of these are highly competitive commodities. With these commodities excluded, we are essentially left with hardware and electronics, items which, collectively, experienced a competitive rate of 67 percent in FY 1982.

The 67 percent rate is still considerably higher than that being experienced by the Military Services. This high rate is attributed to the fact that DLA specializes in consumable item management whereas the Military Services must divert and share their efforts to various areas such as repairables and major systems acquisition.

Question: An amendment to the House Authorization Bill would prohibit the future consolidation of any function at any of the Defense Agencies without specific authority in law. What are your views on this provisison?

Answer: From a management perspective such an approach appears unduly restrictive and involves the Congress in routine day-to-day operations and decisions. If the Committee has some particular item of concern it would appear better to address the matter directly and permit the Secretary discretion in his managerial role as regards necessary consolidation of functions. The overall implication, as indicated in the floor debate, is that the Defense Agencies do not do a good job. This misconception can be addressed in the case of the Defense Logistics Agency by a look at some of our performance indicators. During the first six months of Fiscal Year 1983 our stock availability was 91.5%, on-time fill for all issues was 87.3% - for immediate issues the rate was 95.1% - and warehouse denials were less than 1%. These figures, which are taken from the Military Supply and Transportation Evaluation Procedures (MILSTEP) report, are impressive and are indicative of the quality job being done at DLA. We are proud of our operation and the high quality support we are able to provide the Military Services and believe this performance is superior.

Spare Parts

QUESTION: "There is reason to believe that DOD is spending substantially more for spare and repair parts due to skyrocketing price increases, but the inventories are not growing proportionate to the funding increases. Is this an accurate assessment?"

Answer: Inventories of spare and repair parts were valued at about $41 Billion as of September 30, 1980. By September 30, 1982, inventories had grown to about $52.7 Billion, or a growth of 28.6%. (During this same period, the Consumer Price Index rose by about

19.1%.) Sufficient data is not available to determine how much of the growth in inventory value is due to higher prices versus actual increases in stockage.

Much of the progress made in increased funding under this Administration has yet to impact DoD inventories of spare and repair parts. This is because it takes time to translate funding into procurement authorization documents, and time to obtain contracts and deliveries from vendors. For many spares, it may take two years or more to obtain deliveries after funding is appropriated.

M-1 Tank Spares

QUESTION: In a January GAO report, the auditors found that the Army incurred excess costs of $5.6 million for M-1 spare parts because a ceiling price was accepted by the negotiators prior to establishment of a target cost. General Stallings, is it a common practice to contract for spare parts and end items in the same combined contract?

ANSWER: Replenishment spare parts and end items are not normally purchased by the Army under the same contract. Provisioning (initial issue) spares are generally bought at the same time and under the same contract as end items. In the case of the specific M-1 spares contract in question, spares were to be purchased separately from the end items (M-1 Tanks), however, ceiling prices for both contracts were combined after the contractor, Chrysler, refused to negotiate separate contracts. Since that time, spares and end items for the M-1 tank program have been purchased on separate contracts.

QUESTION: GAO asserts that the combined contract of equipment and spares has the effect of covering a greater proportion of contractor risk. Don't you think contracts for major equipment and spares should be contracted separately?

ANSWER: It has been common Army practice to purchase replenishment spares and end items under separate contracts. This fosters component breakout, where possible, increases competition and can result in lower prices. Only under exceptional circumstances, as in the case of the M-1 contract noted above, will spares and end items be purchased under one contract.

OUT OF STOCK MATERIAL

QUESTION: A July GAO report examined the Navy's practice of requisitioning items not in the supply system on a spot basis. GAO contends the Navy could yield dramatic savings by seeking existing replenishment contracts and limiting spot buys to very high priority requisitions. Admiral Sansone, have you made an assessment of these recommendations?

ANSWER: Spot buys are initiated for high priority requirements where the material is not-in-stock, Foreign Military Sales (FMS) requirements and not carried part number requirements. The decision process for high priority requirements requires the review of all stock contract schedules for the item. If the required delivery date can be satisfied by reconsignment of material from the stock contract, this action is directed; otherwise, a spot buy is initiated to satisfy the required delivery date. The reorganization of SPCC in the last year along program and commodity buying lines has improved information available to inventory managers and buyers strengthening the ability

to satisfy these requirements through reconsignment. However, in many cases spot buys remain necessary because the reconsignment of material will not satisfy the required delivery date. FMS requirements and those for not carried material continue to require spot buys. It should also be noted that savings from reconsignment are reduced to some extent by reconsignment charges imposed by contractors, which cover administrative processing, packing and shipping. The final decision on reconsignment from stock contracts vs. a spot buy rests on the urgency of the requirement and the economics of the particular situation.

QUESTION: In 1982, the Navy's Ships Parts Control Center procured $148 million of spare parts on spot buys. Based on a random sample, GAO determined the Navy paid on the average 24 percent more for the same material which could have been procured through existing contracts. Why are these contracting methods so loosely structured thereby allowing these excessive increases?

ANSWER: The 24 percent average price differential paid on spot buys over replenishment contracts for similar material is not the result of loosely structured contracts. Since spot buys are made for stocked material to meet urgent required delivery dates, the increased prices on the spot buy reflect one or several of the following circumstances: (a) the inclusion of all startup manufacturing costs over the small quantity spot buy rather than the allocation of these costs over a larger quantity on a stock buy; (b) payment of overtime or differential shift premiums to meet required delivery dates; or (c) the inclusion of premium transportation costs to meet required delivery dates. While every effort is made to avoid higher costs by reconsignments from stock replenishment contracts, the intent of the spot buy is to meet a specific required delivery date, where the cost of not having the spare part would have to be measured in terms of degraded readiness.

QUESTION: Another GAO finding determined that the Navy Aviation Supply Office continues to award contracts for non-stocked items even in cases where the requisition has been withdrawn. What becomes of this material and why aren't contract awards cancelled when the need no longer exists?

ANSWER: The procedures in place at the Aviation Supply Office were revised so that contract cancellations are attempted in all cases where the customer cancels the requisition for non-stocked items. However, where the timing of the customer's request is such that cancellation cannot be effected, such as where material has been shipped or the cost of cancellation would exceed 75 percent of the purchase price, the material is shipped to the customer for later use.

QUESTION: A Naval Audit Service review found that 65 percent of naval shipyard requisitions were assigned delivery priorities far in excess of actual needs. This forces unnecessary spot procurements and storage costs. Admiral Sansone, what is the Navy doing to correct the problem?

ANSWER: Subordinate commands have been instructed to ensure strict compliance with established procedures for assigning priority designators under the Uniform Material Movement and Issue Priority System (UMMIPS). Compliance with UMMIPS is being monitored by Navy commands and will be subject of special interest item during procurement management reviews. Corrective action will be taken for UMMIPS abuses.

OVERESTIMATES

QUESTION: GAO reported last month that the Air Force overstated its war reserve readiness spares kit requirements because failure rates were overestimated. GAO estimates $24 million too much is budgeted on the F-15 radar system alone. General Hanson, do you agree or disagree?

ANSWER: We disagree as the thrust of the GAO report dealt with the timing of our wartime computations cycle rather than with the accuracy of the failure rates used. The report assumes that if we recomputed the requirement every time a failure rate changed rather than yearly, as we presently do, then we could reduce our procurement requirement. However, we presently do not have the capability to compute more often than once a year due to the number of items involved and the requirement to coordinate the changes with the user. Also, we will not necessarily get the same reduction in requirements using marginal analysis as the GAO got from just recomputing the radar system requirement in isolation. Even given the GAO method, new procurement was only reduced by $1 million rather than the $24 million referenced.

OVERSTATEMENT OF REQUIREMENTS

QUESTION: Does this overstatement of requirements extend throughout your computation system?

ANSWER: No it does not. We have instituted several significant management improvement programs over the last twelve months to provide increased visibility and quality control of war reserve requirements. We have revalidated all of the various parameters to the computation system. In the process of doing this, the overall requirement was reduced in excess of $600 million and funds were not requested in the the budget. We also instituted a programming kit concept to allow for senior level review of additions and increases to war reserve levels. This has resulted in avoidance of many of the quality control problems found by GAO and better controls over procurement decisions.

FY 84 BUDGET REQUEST VALID

QUESTION: General Hanson, earlier this year the Air Force disclosed that the FY 1982 aircraft spares program was underfunded by $900 million. Nearly $400 million was attributed to price increases. Since the Air Force requirement computation system appears questionable, and in view of the enormous price increases, do you still consider your FY 1984 budget request of over $5.1 billion to be valid?

ANSWER: The FY 84 Aircraft Spares Budget request of $5.1 billion remains valid and is required to support readiness objectives by providing critical spare parts for aircrew training. Additionally, the budget request procures spares required to transition to and sustain wartime operations. We have validated the spares computation system and initiated item screening reviews to identify spares overpricing. Recently we have seen some decreases in spares pricing and leadtimes as a result of the publicity surrounding aircraft spares procurement.

INCREASES IN SPARES BUDGETS

QUESTION. Over the last few years, the Air Force has vigorously pursued a number of modification programs to improve aircraft reliability. Since reliability efforts were designed to decrease spare and repair parts consumption rates, why are we seeing such fantastic increases in the spares budget?

ANSWER. Modification programs are pursued for a variety of reasons. Although some are designed to improve the reliability or maintainability of a given aircraft, many others are aimed at improving a weapon systems safety or mission capability. In fact, few, if any, modifications affect any one of these areas independent of the others. As a result, a modification may well improve the reliability of a system, upgrade its performance, and reduce its maintenance support requirements while contributing to increased aircraft availability. Although this improved system may not fail as often, it may incorporate more costly state-of-the-art components required to make the system responsive to the ever changing threat. Although these components will provide a much needed increase in the capability of the aircraft, their cost may offset potential savings in the spares budget otherwise thought achievable. In any case, the modified system must also be supported with spares. Thus, potential savings from modification programs can be masked by improvements in other areas. In each case, however, the required improvements were considered more economically achieved through modification than any other method.

REEVALUATING PRODUCTION LEADTIMES

QUESTION: A GAO audit released in June found that two of the Air Force Logistics Centers overstated requirements for consumable parts by at least $137 million because the Air Force estimated production leadtimes far in excess of actuals. As a result, more items were ordered than actually required in the supply system. Is the Air Force reevaluating production leadtimes in its computation of spare parts requirements?

ANSWER: The Air Force nonconcurs with GAO's statement that Air Force requirements for spare parts are overstated by an estimated $137 million as a result of inaccurate leadtime data. The estimate represents an extrapolation of the savings computed by GAO for an audit sample. We believe the GAO estimate is erroneous because it is based on accepting the validity of contractor quotes with no further validation by inventory management personnel, i.e., no consideration is given to the contractor's past or present performance or capability to meet routinely the quoted leadtime. The Air Force is implementing improved procedures and controls to ensure that appropriate production leadtimes are maintained in its computation of spare parts requirements. The Air Force has implemented a program to ensure compliance with existing policy regarding the use of leadtime data in the computation. The program emphasizes the need for accuracy and includes specific procedures for quality control. The Air Force is also working on improvements to the annual leadtime survey that will provide the capability to update

leadtimes on a more frequent and responsive basis. The improvements will be implemented in September 1984.

Protest on Breakout Regulation

Question: On the same day the "10 point program" was issued, the Department also released a regulation supplement which modifies the spare parts breakout program. This regulation is under protest with the GAO by small business concerns because the regulation reverses the statutory requirement that non-competitive procurements be justified. Ms. Gilleece, what are your views on this matter?

Answer: I approved the release of the revised regulation; I obviously do not agree with the position of the protester. We have been asked by GAO to present a report on our position in detail. This report is being prepared at this time. We believe the regulation is consistent with law and that the GAO will so conclude. Our procurement regulations require justification of noncompetitive procurements and the breakout regulation is part of the system of developing that justification.

P.L. 95-507

Question: There is also some concern that the new regulation nullifies P.L. 95-507 which mandates the reserve of contracts under $10,000 for small businesses. Do you agree with that assessment?

Answer: I do not. DoD fully implements the reservation of contracts as required by P.L. 95-507. The breakout regulation serves to provide the contracting officer information which helps implement the statute.

TECHNICAL DATA

QUESTION. An April Inspector General audit report concludes the Air Force Logistics Command's technical data system is redundant. This central management of technical data slows delivery to the users and consumes resources better applied elsewhere. General Hansen, what is your assessment of the Inspection General conclusions?

ANSWER. Our technical data system has an element of duplicate, not redundant, operations between the Central Data Repository at WPAFB, Ohio and the collective five Air Logistics Centers. Our system is designed around one central location for receiving and distribution of technical data. The Central Repository distributes technical data world-wide to many authorized users that include Army, Navy, and other US government office users, in addition to, Air Force users. The Air Logistics Centers are heavy users of data for those systems they are responsible for. In order to have technical data on site available for use at the Air Logistics Centers, the Central Respository ships complete sets and updates of technical data for a given system to the Air Logistics Center that has responsibility for that system. This shipment of data occurs after the new technical data are screened for acceptance, processed for reference storage, reproduced for multiple distribution, etc., at the Central Respository. This processing

of data takes time regardless of where it is accomplished. Central processing of data makes better use of available resources and provides the best service to users. We are, however, reviewing our data handling procedures to improve service and speed delivery of data to users.

Technical Data Not Delivered

Question: The Inspector General claims DoD isn't aware that some of the purchased technical data isn't received. Ms. Gilleece, does the Department intend to follow up on the IG recommendations to correct this problem?

Answer: Yes. We are doing just that. IG Report No. 83-098 concerning Management of Data contained four recommendations. All the recommendations will be included in revision to DoD Instruction 5010.12 now in preparation.

Quality Assurance

Question: Admiral Grinstead, your executive director for quality assurance, Admiral Collins, has made a number of allegations on the Quality of Contractor workmanship. He feels the cost of many products is 50 percent higher due to poor workmanship. What are your thoughts on the matter?

Answer: I would like to first point out, Senator, for the record, that Admiral Collins has been quoted out of context by the media. The Admiral has, over the past 25 months as Executive Director for Quality Assurance at DLA, visited over 230 contractor facilities, and top management in many of those facilities have indicated to him a rejection rate of up to 50 percent. In many cases, this is due to the state of the art world, and it is felt that as technology matures, so will the quality of the products produced. Our concern in the military is not only the cost factor but of even greater importance to us is the impact on readiness when we buy equipment which could not perform as advertised.

It has also become apparent to us that many defense contractors have not been calculating the costs of nonconforming material, i.e., what it costs to repair, replace or scrap material. Ultimately as you are probably well aware, these costs are passed on to us. You asked for my thoughts on this matter, well, I see it as a major issue. This is one of the reasons why DoD, along with DLA, has sponsored Bottom Line I and II and Academia conferences to increase the awareness of industrial top management to the quality problems we in the military, along with the American public, are experiencing. I feel that we are making progress and that all three Bottom Line conferences have been successful in bringing industry, academe, and defense together to pursue a common problem...it is a problem, Senator, which we have no alternative but to attempt to find solutions.

Question: The electronics equipment industry seems to be a particular problem with quality assurance. Reportedly, only 30 to 40 percent of the equipment is acceptable when delivered by the contractors. How can we control this problem?

Answer: DoD efforts to control this problem include

strengthening specifications and performance requirements and increased emphasis with equipment manufacturers to improve their quality assurance procedures. Specifications for critical components should include provisions for quality assurance programs at device manufacturers. The companies which assemble these components into electronic equipment are responsible for the quality of the completed device and should control the material provided by their suppliers. Only when attention is given to quality throughout the manufacturing process will improvement be found in end-item performance and reliability.

Rushing Technology to Production

Question: Some believe poor performance and workmanship result from rushing new technology to production. Do you think this is a factor?

Answer: In some cases, yes. There is always a degree of risk in transitioning a program from development to production no matter how conservative the schedule. There is risk in the system performing as required and risk in being able to manufacture it economically. The age old "concurrency" factor applies. There is understandable urgency in putting our latest technology systems in service to meet the threat, combat obsolescence, and stem equipment aging. Sometimes hindsight shows the schedule might have been too success oriented. On the other hand, it is disruptive and costly to keep a program in development longer than necessary. In fact, the development of our complex weapon systems is never completed until initial production quantities are built with production tooling and methods, delivered to the field and employed in operational conditions.

Unrealistic Specifications

Question: In many cases industry argues the Department is partly at fault for poor workmanship by framing specifications too tightly and delivery schedules unrealistically. Ms. Gilleece, what is DoD doing to improve this situation?

Answer: It is our policy to describe our minimum needs in specifications and avoid unneeded and unnecessary requirements. Contractors are invited to identify and challenge provisions which are not cost effective. DoD program managers are directed to arrive at the optimum balance in cost, schedule, and technical performance and to trade off each factor against the others to maintain such balance. Design-to-cost, life-cycle cost, value engineering, and goal/threshold management are useful techniques employed.

It is our policy to give preference to industry or commercial standards where they exist. Military or federal specifications are often based on industry standards and commercial practices. All specifications and standards over five years old are to be reviewed to determine, among other things, if they can be replaced by industry standards. Detailed (or tight) design specifications are only preferred where they are justified to satisfy safety or military operational requirements. In these cases, the workmanship and quality are monitored very closely to assure that the specific requirements are satisfied.

The Logistics Systems Analysis Office has begun a study to develop proposals for a standard DoD policy governing the

measurement of procurement lead time for items of supply. The study is addressing: conditions when historical information will provide the basis for the determination of procurement lead time; criteria for what constitutes a representative procurement; time frames to be used in the computation of lead time, including a logistical segmentation of lead time; and conditions that should be present for contractors' quotations to be used for lead time projections.

Questions Submitted by Senator D'Amato

Increasing Cost Consciousness

Question: You stated that your spare parts buyers are usually in the lower grades and are endeavoring to fill ten or more purchase requests a day. You say the paperwork is astounding and automation is a practical necessity. You stated further that while the workload has gone up, there hasn't been a significant increase in personnel to handle the increased workload. You appear to be stressing quantity of output, not quality of work in your management of the procurement function. How do you plan to make your procurement officers more cost conscious and yet get the work done?

Answer: Each of the Services are individually developing plans to achieve this end. In addition, I have issued directions to retrain those buyers to whom you refer in the pricing fundamentals contained in the Defense Acquisition Regulation Small Purchase Manual.

Automation of the Procurement Process

Question: What are your plans to automate the procurement process? Have specific funds been requested and programmed through the POM process to accomplish these plans? When do you expect to have an approved plan including an implementation timetable and a budget which you could provide to this committee?

Answer: The individual Services are implementing plans for automation. They are responsible for the funding of these plans. Automation must be carefully planned and implemented. A key element is the automation of technical data repositories to be made over the next few years.

Additional Personnel

Question: Do you believe additional personnel would ease your problems?

Answer: Additional personnel would certainly be helpful. The Services are assigning additional personnel through reprioritizing their work force. However, there is a limit to such reprioritizing without degrading other mission essential needs.

Grade Level of Spares Buyers

Question: What is the average civil service grade level of your procurement officers who are involved in buying spare parts?

Answer: The majority of spare parts buys are small purchases (under $25,000) made by buyers in the GS-7 range.

Spare Parts Procurement Officers

QUESTION: What are the average levels of education and of experience of your spare parts procurement officers?

ANSWER: Spare parts are procured throughout the Army's procurement work force which numbers approximately 9,000 and ranges from GS-5 with a high school education to GS-15 with up to a doctorate.

Using as a sampling, the Army procurement careerists registered in the Automated Career Management System (ACMS) on 30 June 1983 which constitutes 86.6% of the procurement workforce, a demography follows:

AGE	GRADES
22% 55 and over	47.6% GS-12 and above
54% 35-54	41.5% GS-09-12
24% Under 25-34	10.9% GS-05-09

Education (Civilian) level of procurement careerists:

1. 37.7% of GS-09 and above have 4 year college education or more.
2. 66.7% of GS-13 and above have 4 year college education or more.
3. 43.2% have bachelor, associate or higher degrees.

Twenty percent of the Army procurement careerist have a minimum of twenty years of federal service. This shows a workforce with the greatest concentration of experience in the GS-09-12 (buyer/negotiator) level.

In the past, it has probably been correct that spare parts procurements have been made to a greater extent by junior people.

Severty-two (72) of one hundred thirty-eight (138) contracting officers in the Navy in major spare parts contracting activities hold at least a bachelor degree. All have a high school diploma. The average experience is fifteen (15) years.

Air Force civilian experience levels have been compiled in the following manner:

YEARS	NUMBER	PERCENT OF TOTAL
0-5	659	41%
6-10	358	22%
11-15	165	10%
16-20	270	17%
21-25	124	8%
26-30	23	1%

The above figures represent contracting experience in the broad sense; they do not break out how long they have worked spares type buying.

The average experience level for military is 17.7 months. This figure represents only buyers and are primarily lieutenants and captains. Not included are supervisory personnel.

The average education level of both civilian and military is 3.5 to 4 years of college with all military possessing at least a bachelors degree.

Roughly 40% of DLA's 5,000 employees in the procurement field hold a minimum of a bachelors degree. If we look only at the supervisors, 53% have a bachelors or higher degree with an average age of 50 years and 24 years of experience. The average careerist is 46 years of age with 17 years experience.

Procurement Officers

QUESTION: How does the level of compensation, education, and experience of your procurement officers compare with the level of compensation, education, and experience of the corporate sales and marketing executives with who they must deal on a daily basis?

ANSWER: There is insufficient authoritative information available on which to base any judgments concerning the quality and condition of the procurement workforce in comparison with corporate counterparts.

DCAA Oversight

Question: The Defense Contract Audit Agency oversees the procurement activities for which you are responsible. Do you believe the D.C.A.A. has adequate resources to conduct the level of oversight these current revelations indicates is necessary?

Answer: DCAA does not oversee the DoD procurement activities. DCAA conducts evaluations of (i) estimated costs submitted by the contractors in support of their contract proposals and (ii) audits of contractors' incurred cost used by the contractors in support of their interim and final billings after contract award. DCAA performs these functions in its role as the contracting officer representative for financial matters.

Oversight and Management

Question: Q. 10. Is the Department continuing any review of the level of resources it now devotes to the oversight and management of its spare parts procurement effort to determine if the allocation of additional resources to these functions would be cost effective? Q. 11. Is the Department conducting any review of its oversight and management structure to determine if more intensive and centralized management is warranted and could reduce costs and improve efficiency? Q. 12. Would you support the conduct of such reviews?

Answer: Each of the Military Services and the Office of the Secretary of Defense are enhancing management attention to spare parts acquisition. Changes in procedure have been instituted and other changes are contemplated in the near future. Additional resources have been assigned by the DoD Components. Management oversight is essential and continuing review is a necessary adjunct. Central policy direction is appropriate but centralization of the operational function does not appear to offer any advantage. The Defense Council on Integrity and Management Improvement focuses continually on reviewing and examining management issues.

DCAA Relationships

Question: Do you believe it should be a high D.C.A.A. priority to maintain a friendly working relationship with the corporation and the government procurement activity they are charged with monitoring?

Answer: DCAA does not monitor the procurement activities, but is, instead, the contracting officer's advisor on financial matters. DCAA is that part of the DoD organization responsible for assuring proper contract cost. I do not believe that DoD could tolerate anything less than a friendly working relationship between its own agencies.

With respect to the contractors, we expect DCAA to maintain a normal arms-length business relationship.

Implementing the Ten-Point Program

Question: What are your plans for implementing the ten-point program Secretary Weinberger set forth in his July 25, 1983, memorandum to the principal offices of the Department?

Answer: We are now in the process of preparing a detailed set of instructions to implement the ten-point program of Secretary Weinberger. Included are procedural improvements as well as new concepts intended to motivate contractors and government activities to concentrate on improvements to spare parts acquisition in conjunction with the initial design of the system.

FAR Provisions

Question: Please provide the committee with copies of any draft provisions which address spare parts procurement which the Department has submitted to the Federal Acquisition Regulations Drafting Committee. Please provide the committee with copies of any draft provisions which address spare parts procurement which the Department either now has under consideration for inclusion in the Department's Supplement to the Federal Acquisition Regulations or has in the past had under consideration for such inclusion. Please describe any proceedings of the Federal Acquisition Regulations Drafting Committee of which the Department is aware which concern possible provisions which affect or could affect spare parts procurement.

Answer: Provisions concerning spare parts acquisition have been determined to be inappropriate for the Federal Acquisition Regulation. Such provisions have not yet been developed, but will be for the forthcoming DoD FAR Supplement.

Procurement

Question: Do you believe the procurement officers in your Agency have the proper level of training, education and experience and are compensated adequately in comparison with the corporate sales and marketing officials with whom they must deal on a daily basis?

Answer: There is always room for more training. Although we manage more than two million items, the bulk of our purchase

actions fall within the small purchase category. The small purchase dollar threshold for Government purchases is $25,000. However, even though this is considered to be a small purchase to the Government, to the type of industry we deal with, $25,000 represents a significant sale. Because we deal predominately with small purchase actions, our personnel pay grades very often fall into the "clerical" category and, as such, are lower than those within the Military Services and industry in general. This creates several problems. First, it contributes to the difficulty in maintaining a reasonable level of experience. Second, because of the lower pay scales, it is more difficult to attract personnel with higher levels of education. Third and last, the lower graded personnel very often must deal with corporate sales and marketing officials whose knowledge and capabilities are well above the clerical level.

Question: Do you believe procurement officer performance evaluation criteria should be changed to more heavily emphasize quality in procurement activity rather than production?

Answer: Quality is and always has been of particular concern and a factor in performance evaluation criteria. Ideally, it should be the first and foremost consideration in every instance. However, because of heavy workloads in purchasing the more than 2.2 million items we manage, quality trade-offs must be made with production pressures. I believe improvement must come primarily from increased automation which will allow buyers to concentrate on the quality aspects of procurement, e.g., component breakout, pricing and competition.

Question: If you could redesign the personnel management system for your procuremtnt people, how would you improve it?

Answer: We are curently considering various changes to our personnel management system. Our first consideration is standardizing the organizational structure throughout to provide improved visibility and management. With this will be the reduction in span of control within our field activities to provide more attention by management to the purchasing process. Of prime concern is restructuring our job classifications to a professional series and provide grade progression for personnel. This will afford greater career opportunities and create a more stable and experienced workforce. Within the system changes we are looking toward more alignment of procurement personnel along commodity lines. It is important, and we must recognize, that commodity knowledge is a prerequisite for quality procurement; more so than how thick a stack of papers is in the contract file. For example, fresh subsistence products are purchased in carload lots on site in the growing fields. We cannot use the same criteria to measure a buyer who makes up to a hundred low dollar value purchase decisions weekly as the one used to measure a buyer who makes a few large dollar purchases annually.

Question: Do you have any plans to conduct a comprehensive review of your procurement process to determine what changes in oversight, management, staffing, training, support, automation and funding might be made to improve the process and make it more efficient and cost effective?

Answer: This is a subject of primary interest within the Defense Logistics Agency. A comprehensive independent review of this entire area was recently conducted. The draft report was recently received. The findings and recommendations of the report are numerous and are presently undergoing a detailed review. We have not yet established a final position on the report recommendations; however, its obvious that we have our hands on some very good ideas for improving the organization, our processes and techniques for improving the goal setting and tracking process.

Question: What plans, if any, do you have to automate the procurement process?

Answer: DLA is continually seeking out better ideas for increasing the use of automation in the procurement process. We are currently making approximately 500,000 awards per year through automated applications. This represents approximately 50 percent of all buys under $25,000. Automation efforts are now being concentrated on the remaining small purchase items. Automation breakthroughs are becoming increasingly more difficult due to the complexities associated with the remaining items many of which are weapons systems related items designated by the Service as critical items or items requiring restricted sources, items with special quality problems, and so forth. These are all labor intensive types of purchases. To resolve these difficulties, we are currently undergoing a modernization program for our Standard Automated Material Management System (SAMMS). The primary objective is tocomplete the redesign to bring our contracting applications to a level of efficiency that takes full advantage of state-of-the-art computer technology. The modernization program for contracting systems is scheduled for phased completion over the next several years. Two immediate refinements, scheduled for February 1984, are to automate numerous items that have historically been purchased manually and to provide for improved internal computer evaluation of price reasonableness to facilitate pricing reviews.

Question: Do you believe additional clerical support for your procurement officers would improve the quality of their work?

Answer: Increasing clerical personnel is not the total answer. How to relieve buying personnel of routine clerical functions is the real issue. The answer to this, and the most cost effective solution is increased automation. Automated systems can handle routine clerical functions faster and more accurately.

ENGINEERING SOURCE APPROVAL

QUESTION: In the B.H. Aircraft case cited in the Inspector General's draft report, B.H. attempted to become qualified to produce F100 a jet engine augmentor divergent nozzle segment assemblies. The procurement in question was a restricted procurement under which only companies which were engineering qualified sources were allowd to bid. In this case, the companies were Pratt & Whitney and its licensee, N.V. Philips of the Netherlands. The price for this part had gone up 143% in thirteen months, and your procurement officers were anxious to get fresh

competition into the picture, feeling, correctly as it turned out, that competition would result in a much lower price. Yet, when B.H. sought to become qualified, the engineering and technical personnel at the procuring activity, the San Antonio Air Logistics Center, would not supply them with any definite instruction regarding the steps they would have to take to become qualified until after the closing date for the solicitation. Then, it turns out that the Air Force asked Pratt & Whitney, B.H.'s competitor, what requirements B.H. would have to meet in order to become qualified. Worse, after Pratt provided the Air Force's technical personnel with a statement of the steps N.V. Philips had been required to follow to become qualified, the Air Force's technical personnel decided on their own to add a more severe qualification requirements than even Pratt had considered necessary--and Pratt clearly had no motive to be lenient in this situation. What steps are you taking to make certain that engineering source approval is required only when absolutely necessary and is not used to erect yet another barrier to competition?

ANSWER: We realize that in the past the Air Force may have been too stringent in our specification and qualification requirements. This is in part attributed to documented manpower shortfalls (70% of validated requirement) which have caused an over reliance on the prime contractors engineering expertise.

Recognizing these deficiencies we have been working with the various industrial associations on alternative methods of accelarating and simplifying our qualification procedures.

This would include programs to qualify potential vendors on perhaps a grouping of similar items and to place more reliance on commercial qualification certificates on like or similar items.

Additionally, to increase competition, we are making second source qualification a part of our contracting procedures during major weapon systems development and production programs.

While we cannot overstate the flight aspects of a stringent item qualification program, we are taking every action possible to increase competition which has in turn caused a complete relook at our qualification policies.

REVIEW SPARE PARTS

QUESTION. Are you in the process of reviewing those spare parts which are designated as proprietary to determine whether or not they should be so designated?

ANSWER. Under the Air Force Logistics Command's "PACER PRICE" program, spare parts are being reviewed to validate the Acquisition Method Code. When proprietary data rights are involved, the review will address whether the proprietary designation is appropriate. Where a reasonable question exists as to the appropriateness of a proprietary restriction, the designation will be challenged.

BREAKOUT PROGRAM IN FULL FORCE

QUESTION. Are you taking action to ensure that the breakout program is in full force and effect?

ANSWER. Yes. A new regulation, "DOD Replenishment Parts Breakout Program", has just been published as Supplement No. 6 to the Defense Acquisition Regulation. The Air Force and the Air

Force Logistics Command are currently implementing this revised and strengthened program. Additionally, the "PACER PRICE" program will dedicate substantial resources to pursuing the goals of the breakout program.

PROCUREMENT RESTRICTION

QUESTION. What steps are you taking to ensure that the minimum number of procurements are restricted or sole source and competition is maximized?

ANSWER. The Air Force has established a Competition Advocate program as a focal point for our overall efforts to maximize competition in each command. In Air Force Logistics Command, the Advocate's duties include surveillance over the identification and qualification of potential sources, and surveillance of the reprocurement data screening process.

The Air Force Logistics Command is also implementing a new program called "PACER PRICE". The objectives of this program include review of restrictive Acquisition Method Codes that have been assigned to spare parts. This is expected to increase competitive breakout.

Repair Parts Technical Data

QUESTION: I have encountered several different cases in which the Army has attempted to procure parts or subassemblies and the technical data package provided by the Army is deficient. In one case, a small gasoline engine of the same sort as a lawnmower engine could not be built using the specifications provided by the Army, because vital information was missing. Does the Army have any plans to make certain that its technical data packages are complete when the original contractor delivers them?

ANSWER: Yes. Army has instituted a Task Force to completely review the management of break-out and to insure implementation of Defense Acquisition Regulation Supplement No. 6, "Replenishment Parts Breakout Program". As part of the effort we will review our technical data management policies and procedures. Further, we are instituting a program of auditing the physical and functional configuration audits of our subordinate commands.

Proprietary Coding

QUESTION: In some cases, when the Army or, indeed, any of the services makes a change in a system, the prime contractor may alter a part and claim that the changed design is proprietary. Then, the service must buy the new part from the original equipment manufacturer, unless it chooses to purchase the data rights to the new part. How closely are you monitoring the assignment of proprietary coding to spare parts?

ANSWER: The Army is aware of this problem and as a standard practice reviews the proprietary coding of spare parts. If a new spare part is introduced, as a result of a design change to a system, the Army requires the part to be screened and coded prior to purchase. Normally, the development of design changes are paid by the Government, therefore, contractor's proprietary claims are challenged.

QUESTION: Do you have any plans to review the accuracy of past designations of parts as proprietary?

ANSWER: Yes, we are reviewing those parts coded as proprietary and making efforts to improve the competitive status. Further, we have instituted a policy that every program manager have an active cost reduction program. One element is to look at dual sourcing of components and sub-assemblies.

Sole Source Procurements

QUESTION: Are you making any effort to review sole source and restrictive procurements to determine if they can be opened up to full competition?

ANSWER: Yes. The Army will place even more emphasis on the competitive procurement of spare parts. Beginning with FY 84, there will be no sole source procurements of spares until there has been a review of the procurement method code to verify that the item cannot be competed.

SPARE PARTS PROCUREMENT POLICY

QUESTION: What is the Navy's policy on the purchase and retention of technical data on the systems it buys?

ANSWER: It is our policy to acquire only technical data that is essential to meet our needs and insuring that the price of data is commensurate with economic or other benefits to be derived from the use of the data.

In attaining positive control of data, a continuous review of data requirements and elimination of non-essential, ineffective and duplicate requests for data are being performed.

QUESTION: Are you satisfied with your ability to acquire and retain technical data packages and specifications?

ANSWER: The acquisition of adequate and available technical data has been a serious problem not only for the Navy but for the entire DOD as well. Where the contractor has stated or alleged that the data is restricted because an item, component, and parts were not developed at Govenment expense, the rights to use the data is limited. Under current regulations, the contracting officer has the right to challenge any restrictive marking assigned by a contractor.

At the same time, acquiring, maintaining, storing, retrieving, and distributing technical data in vast quantities generated by modern technology is costly and burdensome. For this reason alone, it is necessary to control closely the extent and nature of data procurement.

QUESTION: Is the Navy still purchasing it's jet engine parts under Basic Ordering Agreements?

ANSWER: Yes. We intend to continue the use of Basic Ordering Agreements not only for engine parts but for other spare parts as well since the Basic Ordering Agreement is a simple administrative procedure that is specifically advantageous and economical in ordering parts for equipment support in substantially shorter period of time than if we were to individually contract for the spares. However, we are phasing out the pricing of spares under a redeterminable method and instead obtain firm fixed-prices. We have implemented a contract-

ing methodology that will control the prices of spares. For example, high cost repairable spares will be procured on a fixed price basis either as part of the annual engine contract or concurrently but in separate contracts, as appropriate. This method would cover the firm known requirements of high value items which are estimated to be about 50% of the spares dollar value for a year. Secondly, for those spares where the requirements vary more dramatically in quantity, but have substantial demand within a reasonably foreseeable range, the Navy will negotiate and establish a catalogue of fixed prices.

QUESTION: Are you in the process of reviewing the Navy's aircraft spare parts contracts to determine what overcharges may have occurred?

ANSWER: Yes. A review is currently being conducted concerning several Pratt & Whitney items which reflected considerable price increases. The review is cost information which Pratt & Whitney provided. In addition, a Naval Material Command Headquarters procurement management review team is reviewing NTEC's procurement operations in connection with the F/A-18 flight simulator spares contracts. Furthermore, in implementing Secretary Weinberger's 10-point program on the procurement of spares, we have requested the assistance of the Defense Logistics Agency and the Defense Contract Audit Agency to conduct a thorough audit of the cost and hours associated with spare parts for the F/A-18 flight simulators at Sperry Systems Management of Reston, Virginia; to increase the incidence of "Operational Audits" of major Navy contractors supplying spares to the Navy by reviewing all cost elements; to intensify post-award defective pricing audits and identify specific incidents of overpricing and lastly, to provide increased emphasis and support for review of contractors' accounting, estimating and purchasing systems.

QUESTION: Do you plan to ask for refunds to the Government if you do find overcharges?

ANSWER: Yes.

ADDITIONAL COMMITTEE QUESTIONS

ARMY AIRCRAFT

Shortfall for LHX

QUESTION: Has the Army identified a shortfall in projected light attack helicopter assets by the year 1998?

ANSWER: Yes. By 1998, the Army will have a total requirement for [deleted] Current planning includes the development and procurement through the Light Helicopter Family (LHX) program of [deleted] during the POM and EPA. This leaves a shortfall of [deleted] beyond 1998. Approximately 250 AH-1s will be required beyond the EPA to help offset attack shortfalls until replaced by the LHX.

LHX - POM/EPA Resources

QUESTION: How does the identified Army attack helicopter requirement compare with the number of attack helicopters receiving POM/EPA resources?

ANSWER: The Army's total attack helicopter requirements by 1998 are as follows:

Heavy Attack (AH-64) - [Deleted]
Light Attack (LHX) - [Deleted]

Current POM/EPA planning includes development/procurement of [deleted] (attack version) by 1998. Approximately 250 AH-1s will be required beyond the EPA to help offset attack shortfalls until replaced by the LHX.

Need for Additional Helicopter Requirements

QUESTION: Does it appear that the Army will need additional heavy and light attack helicopters in the 1990's?

ANSWER: Yes. Current Army planning includes development/procurement of the following heavy and light attack helicopters by the time frames indicated:

TYPE	TIME FRAME
Heavy (AH-64)	[Deleted]
Light Helicopter Family (LHX)	[Deleted]

Approximately 250 AH-1s will be required beyond 1998 to help offset attack aircraft shortfalls.

QUESTION: Is the identified LHX light attack helicopter requirement fully funded in the Army's POM/EPA?

ANSWER: The LHX attack version is funded in the POM/EPA. Some of the production requirements will fall beyond the EPA period.

QUESTION: What about the scout/observation helicopter variant of LHX? Is it fully funded?

ANSWER: The LHX scout/attack version is funded in the POM/EPA. Some of the production requirement will fall beyond the POM and EPA period.

QUESTION: Will the Army consider dual-sourcing the LHX utility and scout-attack helicopter programs? When would be the time frame for a decision on dual sourcing?

ANSWER: The Army is considering various production programs for the LHX, and dual-sourcing is one of the strategies being considered. Various program schedules and strategies will be evaluated during the concept formulation process and the recommended approach presented to the Army/Defense Systems Acquisition Review Council at Milestone 1. This proposal will be subject to review at Milestone 2 and 3.

QUESTION: What is the current projection for LHX helicopter production, by utility, attack, and scout missions?

ANSWER: The estimated production quantity of the LHX family follows:

Utility: 1946
Attack: 1108
Scout: 1795

QUESTION: Wouldn't this high quantity production be sufficient to justify dual-sourcing?

ANSWER: The production rates for the LHX will warrant consideration of dual sourcing.

QUESTION: Doesn't the LHX development plan call for carrying two contractors to the end of full-scale development?

ANSWER: An accelerated LHX program schedule has been developed to field the Scout/Attack version (SCAT) version two years earlier than the baseline plan. With this accelerated program, two contractors will be carried through development of the SCAT version and midway through development of the utility. At that point, one contracting team would be selected to produce the SCAT and finish development of the utility.

QUESTION: Wouldn't it then be fairly easy to move into a dual-source or leader-follower production mode?

ANSWER: As planned, a dual-source or leader-follower production arrangement should be fairly easy to implement.

QUESTION: Are the Marines interested in LHX? Please provide a list of all Army advanced technology development programs related to the LHX development program.

ANSWER: a. The Marine Corps has been briefed and further coordination with the Marines and other services will be affected during processing of the justification for major system new start.

b. The following list contains the Advanced Technology development programs most related to the LHX development:

Program Element	Project	Title
64223	D326	LHX Engine
64223	D329	LHX Weapons
63220	D325	Advanced Rotorcraft Technology Integration
63206	D318	Air Self Defense
63211	DB41	Advanced Composite Airframe Program
63211	D315	Advanced Digital Optical Control System
63201	D447	Advanced Technology Demonstrator Engine
63207	DB97	System Testbed Avionics Research
63206	DQ43	Helicopter Automatic Targeting System
63209	DB32	Helicopter Battlefield Damage Repair
64711	D665	ASE Integration System
63209	DB45	Aircrew Life Support Integrated Battlefield Suit/Nuclear, Biological Protection Equipment
63201	DB72	Light Weight Drive Train

QUESTION: Would it be feasible or prudent to accelerate the LHX development effort?

ANSWER: The LHX development has already been accelerated two years. Any further acceleration of the program would not allow the capture of significant technology currently under development in 6.3 advanced development areas.

QUESTION: Have you given consideration to the concept of a utility-attack, rather than scout-attack development program, and a separate scout development program, since historically scouts are lighter and more agile than utility and attack variants?

ANSWER: The current LHX concept envisions an armed scout aircraft that can be reconfigured to perform the light attack mission and a derivative of this multipurpose aircraft to perform the light utility mission. As requirements become more firm through trade-off studies during concept formulation, other alternatives such as utility-attack will be explored, as appropriate, to provide the best final acquisition strategy and aircraft design.

QUESTION: What technology appears to be most promising for the LHX aircraft:

-- Advancing Blade Concept (ABC)
-- Tilt-Rotor
-- Advanced Composite Airframe Program (ACAP)

ANSWER: The Army plans to use the technology of the Advanced Composite Airframe Program for the LHX. Tilt rotor, ABC and compound configurations in addition to conventional helicopter designs are being analyzed by the LHX special working group. The "best" configuration candidate will be determined during the Trade-off Determination, Trade-off Analysis, Best Technical Approach and Preliminary Quantitative Analysis. Until

firm requirements are determined and the aforementioned activities completed the configuration cannot be chosen.

QUESTION: What advantages/disadvantages are there to staying with conventional helicopter technology as opposed to ABC or tilt-rotor?

ANSWER: A conventional helicopter should result in a lower weight and lower unit cost vehicle for conventional performance requirements. The conventional helicopter provides efficient hover performance and generally better nap-of-the-earth performance. On the other hand, conventional helicopters have a lower maximum speed limitations, limited high speed load factor capability and limited self deployability when compared to other designs.

QUESTION: Could LHX take advantage of X-wing and NOTAR (no tail rotor) technology?

ANSWER: NOTAR technology has potential application to the LHX. X-wing technology has been examined and is not considered mature enough for application to the LHX.

QUESTION: Is stealth also a possibility?

ANSWER: Technologies which reduce the signature and increase survivability are being considered for application to the LHX.

QUESTION: Wouldn't use of non-conventional technology tend to lengthen development time and drive up costs?

ANSWER: Since ABC and tilt rotor demonstration programs have been conducted and all LHX designs are considering a maximum utilization of available technologies, the development times for conventional/non-conventional configurations should be similar. Unit costs for non-conventional designs may be higher primarily due to higher-vehicle weight; however, productivity, mission effectiveness, and life cycle cost analysis may suggest a non-conventional configuration.

ARMY RESEARCH AND DEVELOPMENT

Advanced Technology Program Funding

QUESTION: The Army is asking for a 20 percent increase in the BMD Advanced Technology Program. Why is it seeking such a large increase this year?

ANSWER: The Advanced Technology Program is expanding its research and development effort in the area of nonnuclear kill to include electromagnetic accelerators and boost phase defense concepts. The 20 percent increase over FY 1983 allows this effort to be pursued efficiently, at a reasonable rate, developing the technology to achieve a solution to the problems of destroying a nuclear warhead without a nuclear detonation.

Homing Overlay Experiment Results

QUESTION: Please provide to the committee the results of the first Homing Overlay Experiment conducted earlier this year. Did the HOE flight test meet all of its test objectives?

ANSWER: The first Homing Overlay Experiment (HOE) flight test was conducted on 7 February 1983. [Deleted].

Systems Technology Program Funding

The descriptive summaries for the Army's BMD program say that the systems technology effort is designed "to demonstrate improved capabilities of a full spectrum of defense concepts and maintain a ballistic missile defense system hedge option for Peacekeeper in closely spaced basing."

QUESTION: Just exactly how much funding has been budgeted in the Army BMD program for the so-called hedge option to defend MX in closely spaced basing?

ANSWER: Of the FY 84 request, $40.3 million is included in the Army BMD program specifically identified for the defense of the Peacekeeper in closely spaced basing. The Deployment Hedge Option represents a BMD tactical system, which can be deployed with minimum leadtime, for defense of our ICBM forces. It is capable of supporting Peacekeeper in a variety of basing modes as well as the existing Minuteman system. Additionally it is capable of being adapted for the support of new land based ICBM systems in a number of basing modes.

The $40.3 million requested for the Deployment Hedge Option will be used for several purposes which include the following: the evaluation of existing Sprint and Spartan missile hardware; the development of a Command/Control/Communication/Battle Management system; the conduct of leadtime analyses, which identify constraints and plot the complex path for deployment; the development of system requirements as they relate to the defense of existing and/or conceptual ICBM systems and basing modes; and the maintenance of the structured interchange of technical, operational, and programmatic information with the Air Force. This interchange provides the information necessary to influence both BMD and ICBM systems designs, to include the development of BMD firing doctrine which is coordinated with the Strategic Air Command.

QUESTION: Where is all of this money maintained, the advanced technology effort or the systems technology effort?

ANSWER: Funding for the hedge option is maintained in the System Technology Program.

SOFAS Funding

QUESTION: How much funding is in the FY 1984 budget request for a follow on to the SOFAS survivable forward acquisition system technology effort?

ANSWER: The budget for the Forward Acquisition System (FAS) Technology Development Program was drastically reduced in FY 83 to make funds available for the higher priority Endoatmospheric Nonnuclear Kill Technology Development Program. The Survivable

Optical Forward Acquisition Sensor (SOFAS), an application of the FAS long wavelength infrared sensor and data processing technology to the tactical warning/attack assessment (TW/AA) mission, was never approved for development, nor funded. A low level of activity in technology has continued since the FAS program was reduced. In addition, the SOFAS concept is being carried through a critical design review in FY 83 ($1.6M) and FY 84 ($2.0M) to provide the basis for an option to proceed into the development in FY 84 or FY 85 if required.

QUESTION: How high of a priority is this project in the Army's overall BMD program?

ANSWER: The BMD SOFAS effort has a relatively low BMD priority. It is being accomplished in cooperation with the United States Air Force (NORAD and SAC) because of its potential as a national strategic asset for the Nation's TW/AA system.

Nuclear Kill/Nonnuclear Kill Funding

QUESTION: Please provide to the Subcommittee a breakout of all FY 1983 and FY 1984 funding for the nonnuclear kill and nuclear kill technology efforts.

ANSWER: The funding for nonnuclear kill technology efforts in FY 1983 and FY 1984 are:

	($ in M)	
	FY 1983	FY 1984
ADVANCED TECHNOLOGY PROGRAM	$37.2	$62.7
SYSTEMS TECHNOLOGY PROGRAM	114.2	126.2
TOTAL	$151.4	$188.9

The funding for nuclear kill technology effort in FY 83 and FY 84 is:

	FY 1983	FY 1984
SYSTEMS TECHNOLOGY PROGRAM (SENTRY Nuclear Interceptor effort)	$14.5	$17.1

These amounts represent only those efforts specifically identified with either nuclear or nonnuclear kill. They do not include the many efforts common to both.

Endoatmospheric Nonnuclear Kill

There seems to be a marked shift in the Army's BMD program this year toward nonnuclear kill. However, last year in answers to Subcommittee questions on the maturity of this technology, the Army stated that it had only limited confidence in the cost estimates for endoatmospheric nonnuclear kill systems since they did not have the definitive design asociated with either endoatmospheric nuclear kill or exoatmospheric nonnuclear kill.

QUESTION: Why have we opted to abandon exoatmospheric nonnuclear kill and proceed so much more rapidly with endoatmospheric nonnuclear kill?

ANSWER: Exoatmospheric technology has not been abandoned to proceed more rapidly with endoatmospheric nonnuclear kill (ENNK) technology. The BMD program is continuing in its overall effort of advancing technologies to counter ICBM threats in both the endoatmosphere and exoatmosphere, to include the boost phase.

The increased effort in ENNK did not stop all research and development on exoatmospheric defenses, however, it did decrease its emphasis, particularly in the Advanced Technology Program (ATP). Even so, research is continuing in the ATP in such exoatmosphere programs (d) STP research in the exoatmosphere is centered (d). The funding level in FY 1984 for ENNK is $154.3M, while the funding level for exoatmospheric program is $211.4M. The ENNK program is planned to be [deleted.]

FY 85 BMD Budget

QUESTION: The FY 85 budget is projected to more than double. Please provide to the subcommittee an explanation of why the Army deems it imperative to move so rapidly with BMD systems technology next year. Could it be because of the shift toward nonnuclear kill?

ANSWER: The FY 85 budget was based on a vigorous research and development program to support the President's strategic defense initiatives and contained funding for a deployment hedge to support an October 1983 Presidential decision on BMD.

Technical Differences

QUESTION: Please describe the technical differences in defending a closely space based MX system and widely spaced Minuteman silos. Please discuss such technical features as spacing, radar survivability against the effects of electromagnetic pulse and system costs.

ANSWER: Detailed studies of the defense of numerous options have been performed. BMD concepts have been developed for ICBM spacings ranging from 2000 feet (Closed Spaced Basing), to 5 miles (Minuteman silos). Specific performance in each of these concepts is driven by complex combinations of such factors as impact prediction capability; nuclear environment, and resulting component hardness requirements; and inventory. For closely spaced silos, maximum performance can be obtained from a limited inventory because more silos lie within the defended footprint of the radar and interceptors. [Deleted]. For widely spaced silos, [deleted] more inventory is required to obtain the payoff even though preferential defense leverage is higher. As a result, the major influence of silo spacing is one of cost because, as spacing increases, a larger inventory (radars and interceptors) is required to achieve the same relative performance.

An extensive effort of radar hardening against the effects of electromagnetic pulse (EMP) and other nuclear effects is ongoing. A unified multiple-layer shielding approach, designed to confidently operate in both high-altitude and expected source region EMP environments, is being followed. This EMP design approach is applicable for all defense options regardless of spacing.

Defense Differences

QUESTION: From a BMD perspective, which is easier and less costly to defend a closely spaced ICBM field or a widely spaced ICBM field?

ANSWER: It is less costly to defend a closely spaced ICBM field because fewer BMD components are required to achieve a given effectiveness. This is due to the fact that closely spaced basing allows each BMD component to "cover" many more ICBM's than is possible in widely spaced basing.

On the other hand, it is a relatively easier job to defend widely spaced ICBM's than closely spaced ones, even though either of these defenses is within the current state-of-the-art. Wide spacing reduces stressing BMD silo hardness and operation in nuclear environment requirements somewhat and allows better preferential defense and resilience against penetration aids.

Patriot

QUESTION: Why is the Patriot R&D line more than three times greater in FY 1984 than in FY 1983?

ANSWER: A total of $46.9 million Research and Development funds was appropriated for Patriot in fiscal year 1983. The Research and Development funding request for fiscal year 1984 is $84.6 million, which primarily reflects additional tasks associated with increasing the capability of the system against future threats and implementation of a revised maintenance concept to reduce the Government's dependence on the contractor for support.

QUESTION: Please outline all additional Patriot R&D work that will be conducted in FY 1984 which justifies that funding increase.

ANSWER: The following additional Patriot Research and Development work is planned in fiscal year 1984:

a. (U) Depot/Intermediate Maintenance Capability: This effort will consist of developing test program sets and adapters for depot test/repair equipment, logistic support analysis data for depot activities, and intermediate maintenance publications. These activities will reduce the Government's dependence on contractor support and provide a level of maintenance between depot and battalion.

b. (U) Low Radar Cross Section: This hardware effort develops and incorporates expanded memory modules and 12 bit analog to digital converters in the radar to permit detection of lower than system specification radar cross section targets. This task is enhanced by the pulse doppler improvement being developed under the software task.

c. (C) [Deleted] Improvement of Patriot's capability to counter the postulated [deleted] within the current engagement envelope, is addressed in this effort. Both hardware and software changes have been identified for incorporation into Patriot.

d. (U) Software Development: This effort provides the support required to develop enhancements to the post-deployment builds to be fielded in fiscal year 1985 and beyond. Software tasks identified for development and incorporation into these builds results from on-

going tasks, the Responsive Threat Analysis, and software development in support of hardware modifications.

e. (C) Multibeam: This hardware effort develops and incorporates [deleted] (track-via-missile downlink) in the Patriot radar. The associated software development and test requirements are included in this effort.

f. (U) Test Support: This effort supports both other Government agencies and the contractor in conducting search/track tests and missile firings at White Sands Missile Range (WSMR). The improved fuze processor and software Electronic Counter-Counter Measure enhancements will require targets, Electronic Counter Measure support, as well as range and facilities support during fiscal year 1984 to successfully complete testing.

Anti-Tactical Missile Program

QUESTION: The Army is requesting $33.3 million in FY 1984 for continued R&D on the anti-tactical missile. Last year the Committee did not support initiation of this program, and in doing so specifically referred to the lack of firm Army inventories and program costs. Has the Army firmed up its estimates for a total anti-tactical missile inventory and program cost?

ANSWER: No, the Army has not yet developed firm estimates for either total Anti-Tactical Missile inventory or total program cost. The Joint Anti-Tactical Missile Program is a new start in fiscal year 1983 and is in the conceptual phase of its research and development, with requirements to be determined in fiscal year 1983 and early fiscal year 1984.

QUESTION: Please provide for the record an assessment of the impact that the following funding reductions would have on the ATM effort: (1) $20 million; (2) $15 million; (3) $10 million.

ANSWER: The Army received $10 million in fiscal year 1983 to initiate the Joint Anti-Tactical Missile Program and has requested $33.3 million in fiscal year 1984 to continue research and development efforts in this program. Any of the three funding reductions listed above would impact on the program by: causing a major restructuring of the program, delaying Initial Operational Capability for Patriot with Anti-Tactical Missile capability by at least one to three years, and stretching the total program out by at least one to three years.

Special Electronics Mission Aircraft X (SEMA-X)

QUESTION: Last year the Committee did not fund the Army's SEMA-X program. In doing so it directed the Army to provide an up to date analysis of the life expectancy of its current inventory of Army airborne intelligence and electronic warfare platforms. That analysis has not yet been provided to the Committee. Why not?

ANSWER: The Army conducted an up-to-date analysis of the life expectancy of the current SEMA fleet. A summary of that analysis was enclosed in the Action Taken portion of the Army's response to the House Appropriations Committee Report, page 120, subject: Special Electronic Mission Aircraft-X. The following analysis is provided for the record.

Action Taken

The Army has conducted an up-to-date analysis of the life expectancy of the current SEMA fleet. In addition, the Army's requirement for SEMA-X has been rolled into the Joint Services Advanced Vertical Lift Aircraft (JVX) program. This was predicated on the need to replace the aging OV-1D/RV-1D MOHAWK aircraft and to consolidate the SEMA assets. The residual SEMA-X development (6.3) funding line is necessary to support the SEMA systems integration of JVX. It does not support a new start for an aircraft other than JVX. The overall objectives are to economize resources by providing one aircraft which can perform the SEMA missions, communication intelligence (COMINT), electronic intelligence (ELINT), imagery intelligence (IMINT), and electronic warfare (EW) for both the Corps and Divisions in real time and to be fully compatible with other Services' collection and intelligence systems.

The current SEMA fleet has a varied life expectancy. Sufficient numbers of aircraft must be maintained to perform the critical SEMA missions for six Corps and their respective Divisions. The calendar life expectancy of the SEMA fleet is based upon service life design specifications, the flying hour program (peace or wartime usage rates), and historical attrition.

The OV-1D MOHAWK aircraft has a design service life expectancy of 7000 hours. Through FY 2000 (using this criteria with a peacetime usage rate of 20 hour/month per aircraft), over 70 of the 110 required OV-1D MOHAWK aircraft could still be in service. However, by Fiscal Year 1992 in an increased or surge (wartime) flying hour program of 60 hour/month per aircraft, the MOHAWK fleet would be nonexistent.

The RV-1D (QUICKLOOK) MOHAWK fleet of 28 aircraft, also based on a 7000 hour service life, can expect with a peacetime usage rate to be operational through Fiscal Year 1997 and Fiscal Year 1990 with a wartime usage rate.

The RC-12 (GUARDRAIL) has a peacetime life expectancy of Fiscal Year 2007 and a wartime useful life of Fiscal Year 1993.

The RU-21H GUARDRAIL aircraft is planned to be retained in service until 1990 as agreed to during the 1981 World-wide Aviation Logistic Conference. This was based upon the U-21 aircraft's service life expectancy.

The EH-60 QUICKFIX II helicopter currently is planned to be retained in service beyond Fiscal Year 2000 as it is a derivative of the current UH-60 BLACK HAWK helicopter.

The EH-1H/X QUICKFIX helicopter is a derivative of the UH-1H Huey helicopter which is planned for use through Fiscal Year 2000 or until it becomes economically too expensive to maintain. An on condition maintenance (OCM) overhaul program is being used to keep them in service.

In summary, the JVX delivery schedule starting Fiscal Year 1993 is compatible with the life expectancy of the current SEMA fleet but it should not be the only determinant. Of equal and perhaps of more importance are the factors of the survivability, increasing threat, advanced technology, standardization, interoperability, economies of resources, life cycle costs of operating and maintaining a mixed fleet of aircraft, and the overall modernization both in airframe and sensor capability of the SEMA fleet. Together, attrition, age, and modernization justify the SEMA-X/JVX requirement schedule.

QUESTION: If the Army is directed by Congress to be withdrawn from the Joint Services Rotary Wing Program, how would it propose to meet its future special mission aircraft requirements?

ANSWER: It is doubtful that the Army alone could afford a new SEMA aircraft development program to meet its SEMA-X needs. Extending the life of selected SEMA aircraft and/or procuring a replacement existing aircraft would probably be the only affordable alternatives.

Without a JVX, the Army would have to readdress how best to satisfy the SEMA-X requirements.

Question: Have the Army and the Office of the Secretary of Defense now agreed on the specific plan to meet the Army's Short Range Air Defense Command and Control requirements?

Answer: Yes, OSD was briefed on 14 March 1983 and approved the program plan.

Question: What is the total acquisition cost for this program?

Answer: $890.6 million (A Base Line Cost Estimate has not been completed).

Question: Last year, the Appropriations conference directed that the Army pursue a program which emphasized improving existing equipment rather than developing new items. Is this general direction in which the Army is moving with respect to this program?

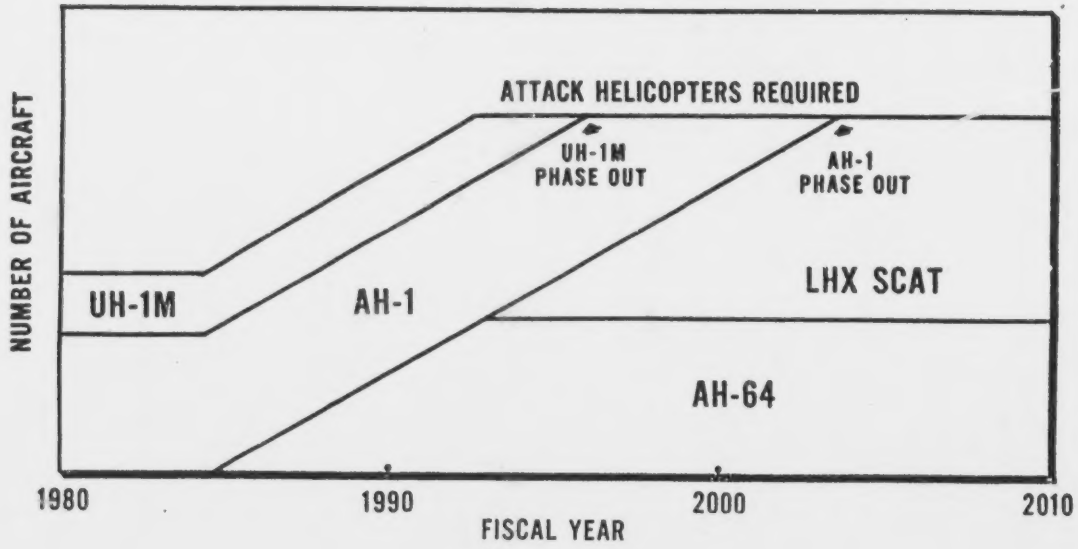
Answer: Yes, the program plan requires the use of equipment which is already developed.

QUESTION: The Army is requesting $2 million this year to begin exploratory development of the new LHX Multi-purpose helicopter. LHX is proposed to be a replacement for both current Army utility and attack helicopters. Please provide to the committee a chart addressing the average age of current Army utility and attack helicopters through the year 2010 and show how the LHX will integrate into the total Army helicopter force by that year.

ANSWER: Answers to above questions are addressed on attached charts.

ATTACK HELICOPTER

ARMY 90's TOTAL REQUIREMENT



AVERAGE AGE

UH-1M	12	22	32	42
AH-1G	13	23	33	43
AH-1S	4	14	24	34

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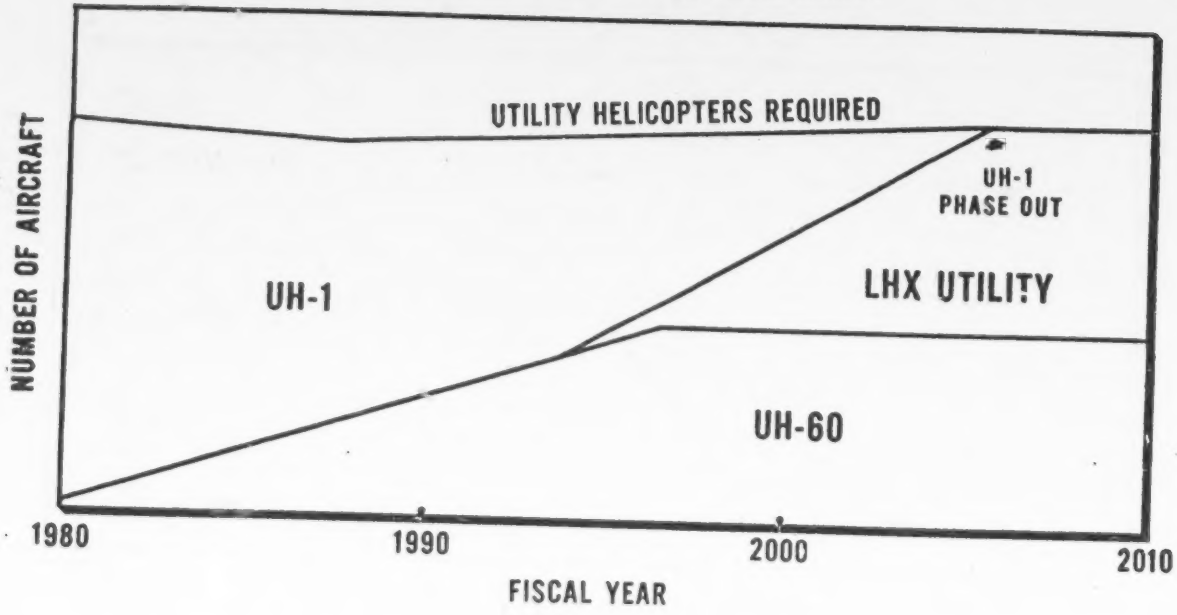
UTILITY HELICOPTER

ARMY 90's TOTAL REQUIREMENT

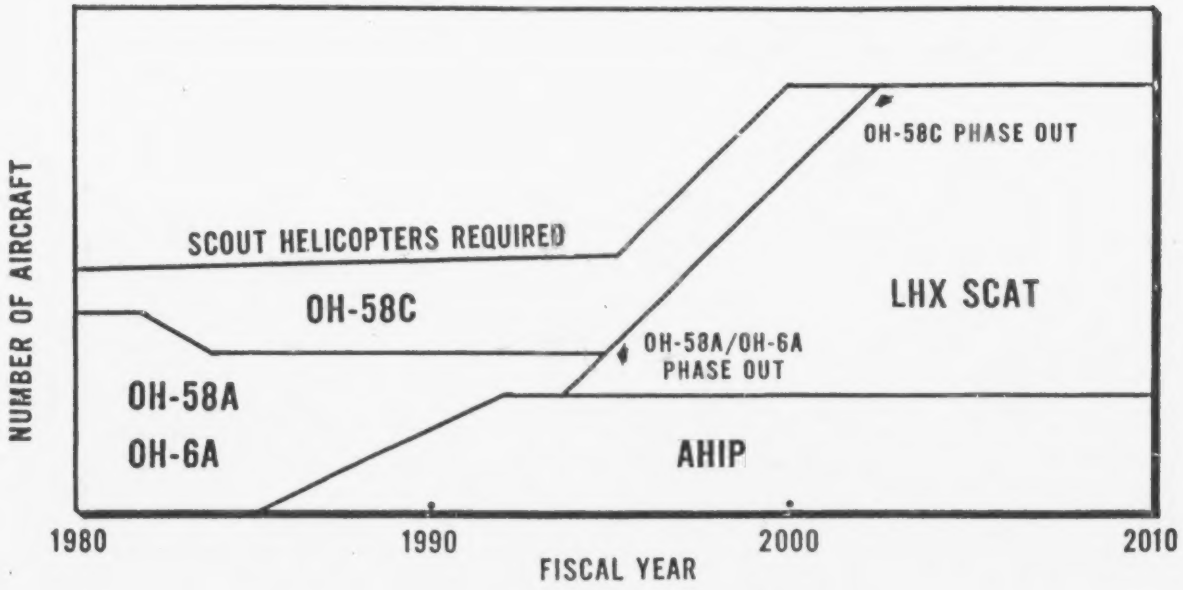


AVERAGE AGE

UH-1H 10 20 30 40

SCOUT HELICOPTER

ARMY 90's TOTAL REQUIREMENT



AVERAGE AGE

OH-6A	12	22	32	42
OH-58C	8	18	28	38

QUESTION: Has mission analysis been conducted within AVRADCOM with respect to the LHX?

ANSWER: The US Army Training and Doctrine Command (TRADOC) conducted the Army Aviation Mission Area Analysis and prepared an Army Aviation Development Plan. The Office of the Deputy Chief of Staff for Operations prepared the Army Aviation Modernization Plan. Throughout these plans, the LHX family of aircraft were essential modernization components.

QUESTION: Would the LHX provide a mission potential for rapid deployment forces in high technology light divisions?

ANSWER: The LHX will be designed for rapid deployability on Air Force aircraft. Some configurations now being studied can be self deployed. Furthermore, the LHX will provide rapid deployment forces with a small, highly survivable scout/attack aircraft ideally suited to their lighter weight forces.

QUESTION: Aside from development of a new LHX helicopter airframe, it will also be necessary to develop a new engine and also new armament for the LHX in its attack role. What plans has the Army with respect to these new initiatives?

ANSWER: The Army plans to capitalize on the existing Advanced Technology Demonstrator Engine program and enter full scale engineering development with this engine. On-going advanced development programs will examine weapon systems, target acquisition systems, and aircraft maneuverability requirements with emphasis on air-to-air encounters for the LHX. Current plans are to conduct a weapons system engineering development program to improve existing hardware followed by a new hardware weapons systems development program.

QUESTION: Will they be funded separately from the LHX R&D line or will they be funded within the LHX R&D line in future years?

ANSWER: The Army is establishing a single engineering development program element which will have separately identified projects for the aircraft, engine and weapons.

QUESTION: The Committee understands that it is very premature to obtain firm cost estimates on a new development program when it is only in the exploratory stage, however, the committee also understands that this will be a major new initiative for the Army because nearly 2,900 helicopters will be acquired. When will it be possible to develop total acquisition cost estimates for the LHX program?

ANSWER: Acquisition cost estimates for the LHX will be developed by an Army Special Task Force (STF) scheduled to be convened in 1983. The first estimates are expected to be available at milestone one in fiscal year 1985.

QUESTION: The Committee understands that the current LHX development plan calls for carrying two contractors through full scale engineering development, after which a decision will be made on award of the production contract. Does the Army believe that

this is the most cost effective way in which the program can be managed?

ANSWER: The revised LHX development plan will maintain competition throughout engineering development for the scout/attack (SCAT) version of the LHX. The Army does believe this is a most cost effective way to develop the LHX.

QUESTION: Would the Army plan to conduct a fly off between the two LHX prototypes?

ANSWER: Yes, the Army does plan to conduct a fly off between the LHX prototypes.

Joint Tactical Missile System

QUESTION: The Army is participating with the Air Force in the Joint Tactical Missile System (JTACMS) program. However, it has come to the attention of the Committee that the final Joint Services operational review for JTACMS will not be finalized until the 4th quarter of FY 1983. Why should Congress agree to provide FY 1984 funds to initiate full scale engineering development of JTACMS prior to finalization of its technical design?

ANSWER: If Congress does not agree to provide the requested fiscal year 1984 funds for the Joint Tactical Missile System program, the Services cannot initiate Full-Scale Engineering Development (FSED), a contract cannot be awarded in third quarter fiscal year 1984, and the fiscal year [deleted.] Initial Operational Capability cannot be achieved. Formulation of the Joint Services Operational Requirement (JSOR) and the technical design have been ongoing since November of 1982. The fourth quarter fiscal year 1983 approval/validation is the final formal step in the requirements process. The Services will need the fiscal year 1984 funds to release a Request for Proposal (RFP) to industry, evaluate the Request for Proposal, and award the Full-Scale Engineering Development contract in third quarter fiscal year 1984.

QUESTION: The Committee understands that there may be a difference of opinion between the Army and the Air Force over the optimum weight, length, and diameter of the Joint Tactical Missile System (JTACMS). Would the Army prefer a larger missile rather than take a penalty by losing range and payload?

ANSWER: Yes, the Army would prefer not to take a penalty in its requirements for range and payload. However, it appears that a common missile could be developed that would either minimize the Services degradation in its requirements or meet the requirements.

155mm Product Improvement Program

Question: The Army is requesting $64 million in FY 1984 to begin a product improvement program for the 155mm Self-Propelled Howitzer. Please outline the proposed improvements for each 155mm subsystem.

Answer: The 155mm Howitzer Improvement Program is currently in the Concept Exploration Phase leading toward an Army Staff decision in May 1983. During this phase a number of 155mm Howitzer Improvement alternatives are being evaluated. These include: Three levels of product improvements beyond the M109 E4 configuration, a

totally new system and a foreign system. Systems and cost effectiveness are being evaluated using the M109E4 (HELP) system as the baseline.

Product Improvement Alternatives;

a. Three degrees of M109 Self-Propelled Howitzer product improvements beyond the M109E4 configuration are being considered. The primary difference among the PIP alternatives (MP3, MP2, MP1) are the type of cannon, loader mechanism, automotive system, armor and maintenance concepts.

(1) Alternative MP3 is the minimum PIP envisioned beyond the M109E4 configuration. This upgrade includes the addition of the M199 cannon, which is now on the M198 towed howitzer and would provide a 30 KM range capability, the addition of new radios with digital communications capability, an automatic fuze setter, an automatic primer feed mechanism, and upgrades in the automotive system and the NBC defense equipment. This upgrade will provide improved survivability and better fire control. The C^3 upgrades are particularly significant.

(2) Alternative MP2 includes all of the improvements included in MP3 plus a new cannon/breech/recoil system, a semi-automatic loader, increased ammunition storage, an improved automotive system, improved rate of fire, increased range, and improved armor protection. These improvements will allow for additional coverage of targets and complement the communications and control improvements made in MP3.

(3) Alternative MP1 offers further improvements over MP2 by incorporating a fully automatic projectile and propellant loader, increased ammunition storage, and a new automotive system. This improvement requires significant modification or possible replacement of the M109 cab. The surviviability is enhanced by incorporating a hybrid NBC system (ventilated face piece system, plus micro-cooling and positive overpressure), and new armor. Improved system operational availability will be achieved with the addition of built in test equipment (BITE) and the ability to provide replacement at the organizational (forward area maintenance) level.

b. The New System alternative allows for the development of optimum system characteristics to improve responsiveness, survivability, terminal effects, and RAM. This alternative includes a new gun system, the latest C^3 equipment, a fully automatic loader, ready ammunition storage, a new automotive system, total NBC protection, high rate of fire (with reduced personnel), and enhanced forward area maintainability. A new ammunition resupply vehicle would be developed with commonality in automotive and auxiliary equipment to the new self-propelled howitzer.

c. A foreign system concept is also being considered as an alternative; the trilateral countries (UK, Germany, Italy) have developed the SP70 Self-Propelled Howitzer. Since the basic SP70 does not represent a significant improvement over the M109E4, a PIP version has been recommended as an alternative.

Question: What is the timeframe for when the Army Systems Acquisition Review Council will decide on the extent of all 155mm product improvements.

Answer: The Army System Acquisition Review Council (ASARC) is currently scheduled to meet 26 May 1983 to determine what alternative(s) will be carried forward to the Demonstration and Validation Phase.

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

REAL GROWTH IN FY 1984 BUDGET

Question: The FY 1984 DARPA budget totals $868 million. This is a 13.5 percent real growth increase over FY 1983. Please outline what programs are responsible for this major real growth in FY 1984.

Answer: The major increase is due to the inclusion of $50.0 million for a major new effort in "Strategic Computing and Survivability" which provides for the development and demonstration of extremely high performance computers.

The remaining increase results from increased funding of our Space Laser TRIAD, Short Wavelength Laser, Electro-Magnetic Gun, and Long Haul Array programs and new program initiatives in Gallium Arsenide Integrated Circuits and Ceramic Polymers.

Space Based Laser Program

Question: Last year the Appropriations Committee zeroed the Air Force Space Based Laser Program line. Please comment on the impact that that action has had upon the overall Space Based Laser Program.

Question: Has this precipitated a slip in the space based laser weapons demonstration?

Dr. Cooper: The budget action precipitated a restructuring of the Air Force portion of the program to accommodate the lack of FY1983 funds. System studies and target vulnerability efforts initiated with FY1982 funds were extended in time, and feasibility technology tasks were deferred. The net result is a program stretch of one year to support a decision in (d) on whether to proceed to the next phase of laser development.

Question: What would be the net impact on the program both in terms of cost and schedule if Congress zeros the Air Force laser line again in FY 1984?

Dr. Cooper: Programs initiated with FY1982 funds would be terminated at the end of FY1983 if no resources were available in FY1984. This would include all work on target vulnerability and hardening, laser system survivability, laser system concept definition and laser system utility would be held in abeyance throughout FY1984. This would result in a program slip of at least one year depending upon the resources available in FY1985 and the efficiency of the start-up process at the beginning of that year. Such a budget would cast serious doubt on the viability of the program, and the most optimistic projection would include a decision milestone no earlier than [deleted.]

Question: What contingencies has DARPA taken to restructure the DARPA triad program in the event that Congress refuses to spend the money this year for the Air Force program?

Dr. Cooper: DARPA has begun to develop contingency options in the event that funds for the Air Force portion of the Space Laser Program are not forthcoming. It is clear that flexibility within the DARPA budget to accommodate such contingencies is limited due to the magnitude and hardware nature of DARPA's TRIAD

programs. The schedules for our programs have already been stretched to match fiscal reality; further slips would introduce significant program inefficiencies and substantially greater total program cost. Thus, short of a major technical descoping of one or more of the TRIAD programs, the only flexibility within DARPA would be to sustain the target vulnerability and hardening efforts at a modest level during the funding hiatus within the Air Force program. However, without continued Air Force funding at the levels required to adequately address vulnerability and system utility issues, it is clear that there would be no possibility of making an "informed decision" in [deleted.]

Question: What is the current status of the TALON GOLD program in FY 1984? What would be the impact on TALON GOLD if the Air Force does not participate in the program beyond FY 1985?

Dr. Cooper: The contracted portion of the TALON GOLD program, specifically, the design of the experiment payload, is on schedule and within cost. With completion of a software Interim Design Review in the third quarter, FY 1983, all aspects of the payload will be in detailed design. Critical design review is scheduled for fourth quarter, FY 1984.

The integration portion of the program, including target modification design as well as payload/shuttle integration, is scheduled to begin at the end of FY 1983 and will culminate in a Critical Design Review one year later.

All portions of the program are on a schedule consistent with a shuttle launch in the fourth quarter of FY 1987. However, maintaining this schedule and the current program technical content is predicated upon full Air Force funding and participation. If such Air Force support is not available beyond FY 1985, the program cannot be carried to completion in its current form unless the DARPA budget is significantly increased. Without Air Force support or without a substantial augmentation in the DARPA budget, the TALON GOLD program is not feasible. In such a situation, development of acquisition, tracking and pointing technology would be limited to laboratory testing, resulting in higher risk associated with any follow-on program decisions in FY 1988.

Question: Please provide for the record a compilation of all DARPA funding for the Space-Based TRIAD program in FY 1984. Please provide the funding amounts for the following projects: TALON GOLD, ALPHA, and LODE.

Answer: The following chart summarizes DARPA's FY 1984 funding profile.

PE	Program	$ in Millions
62711E	TALON GOLD	$ 61.0
62711E	ALPHA	$ 43.1
62711E	LODE	$ 23.5
	Total	$127.6

Short Wavelength Laser Technology Program

Question: How much funding is in the FY 1984 budget for the Short Wavelength Laser Technology?

Dr. Cooper: There is approximately $40M in the FY 1984

DARPA budget for development of short wavelength laser technology. This includes the funding for excimer lasers, free electron lasers, short wavelength laser beam control, x-ray lasers, and blue-green lasers.

Question: Please outline how DARPA proposes to spend the additional $10M provided for short wavelength laser technology in FY 1983 by Congress?

Dr. Cooper: The funding breakout for the additional $10M provided in FY 1983 by Congress is shown below:

Program Element	Additional Funds
Excimer Lasers	4.6M
Free Electron Lasers	1.8M
Advanced Beam Control	3.1M
[Deleted] X-Ray Lasers	0.5M

The additional funding provided in FY 1983 by Congress will be utilized to fully exploit the recent technological breakthroughs in the Short Wavelength Laser Technology Program. In the excimer laser program, one of the major technological accomplishments was the subscale experiment that demonstrated that an excimer laser beam with a large beam divergence can be corrected to a beam divergence near the diffraction limit by using the Raman scattering effect. This capability will significantly reduce the technological risk and cost associated with high average power excimer lasers. It will also provide the potential for coherent addition of several [deleted] excimer lasers into a single output beam at an average power of [deleted] [deleted] with near diffraction limited beam quality. The additional FY 1983 funds will also be used to demonstrate single pulse scaling of the unique beam quality improvements available from the Raman process. Also, the development of repetitive pulse technologies for excimer lasers will be accelerated with the objective of resolving all remaining repetitive pulse issues by [deleted.] The original President's budget supported an end of (d) schedule.

With the additional FY 1983 funding in the Free Electron Laser Program, the rf accelerator technology will be extended to provide the improvement in electron beam emittance required to scale free electron lasers to shorter wavelengths. This will allow a short wavelength FEL experiment to be initiated in FY 1985, one year earlier than possible at the original funding level.

The nearest term weapon application of short wavelength lasers would utilize ground based lasers directly against [deleted] in the near term and potentially against [deleted] in the farther term. In order to fully utilize the long ranges potentially achievable with short wavelength lasers, it is essential to be able to correct for the effects of atmospheric turbulence. In FY 1982, several concepts were identified that represented a major advance in this area. The FY 1983 President's Budget Submission permitted resolution of these issues by [deleted.] With the additional funding provided in FY 1983, this feasibility experiment will be accelerated to [deleted.] These funds will also provide for adaptive optics component technology that can be utilized both for ground based and/or space based short wavelength lasers.

The additional funding provided under the [deleted] X-ray Laser Program will provide a more rapid assessment of the most promising military applications for this technology.

EXCALIBUR Program

Question: What is the status of the EXCALIBUR project, and how much funding is in the FY 1984 budget for x-ray lasers?

Dr. Cooper: The current EXCALIBUR Program is primarily a Department of Energy program for the development of the laser device technology. The Department of Defense efforts in this area have concentrated on the potential military applications and initial studies of the acquisition, tracking, and pointing technology required for this device. The detailed status of the EXCALIBUR Laser Device Development Program is best addressed by the Department of Energy. The initial [deleted] tests were accomplished in November 1980 under the code name [deleted.] In those tests Lawrence Livermore National Laboratory demonstrated the basic lasing process. More recently Livermore has conducted a second [deleted] test code named (d) which is primarily the evaluation of a [deleted] source to drive the x-ray laser but which did address some of tne fundamental laser technology issues. Detailed technical results of that experiment are yet to be analyzed. However, preliminary assessment of the data indicates success in most of the goals set for that experiment.

As part of the DoD program supporting EXCALIBUR, a military application workshop was held in FY 1982 to determine the more promising applications for the [deleted] x-ray laser. As a result of that workshop, DARPA nas initiated studies to address the unique acquisition, tracking, and pointing technology requirements for such a weapon. We have also begun more detailed analysis of the applications that were identified at the workshop as having the highest potential payoff. The DARPA funding in the 1984 budget for x-ray lasers is approximately $1M. This funding will be utilized to accomplish initial acquisition, tracking, and pointing design concepts studies, and to continue applications analyses.

Question: Are the short wavelength and x-ray laser programs fully funded at the present time?

Answer: With the addition of the $10M in FY 1983, the DARPA short wavelength laser and x-ray laser programs are funded at a level sufficient to fully exploit recent technological advances in the areas that are already under development within the DARPA program. The pace of the short wavelength laser program in excimer laser and advanced beam control technology is primarily determined by the speed with which we can accomplish the atmospheric compensation feasibility experiment and demonstrate the repetitively pulsed laser technology for high average power excimer lasers. Funding in the free electron laser program is sufficient to permit experimental evaluation of the feasibility of scaling free electron lasers to short wavelengths by late FY 1986 and by the same time period to evaluate the utility of induction accelerators, such as the Advanced Test Accelerator being developed for the charged particle beam program, as a free electron laser driver. The x-ray laser program at DARPA, with its focus upon applications and weapons utility issues, is being pursued at a pace consistent with the progress on the DOE [deleted] test program. Should the pace of that program be significantly accelerated, we would need to reexamine our commitment in that area.

Question: Is it DARPA's contention as it was last year that these technologies are not mature enough to absorb additional

funding which may be added on by Congress in its authorization and appropriations process?

Dr. Cooper: Short wavelength laser technologies being developed by DARPA are maturing rapidly; however, there are still many technological issues which must be addressed prior to engineering development. At this time, this program is paced by technology rather than funding. The funding provided in the President's Budget Submission will allow us to explore many new concepts which have the potential to become technological breakthroughs should the fundamental feasibility experiments continue to prove successful. Should this technology develop at an even faster pace than anticipated, sufficent funding flexibility exists within the requested DARPA budget to exploit these successes.

Question: Please outline for the committee the amount of funding in the FY 1984 budget request for the Blue/Green Laser Communications Program.

Dr. Cooper: We are requesting a total of $23.0M for Submarine Laser Communications counting both the tactical airborne development and the longer range technology program for satellite applications.

Question: Describe the new airborne tactical blue/green laser communications project and how much funding is devoted to it this fiscal year and compare it to the FY 1984 budget request for this project.

Dr. Cooper: The tactical airborne SLC Program (SLCAIR) is building on the successful series of tests conducted between an aircraft and a submarine in 1981. The airborne transmitter will operate at [deleted] instead of the [deleted] achieved in 1981. Two receivers are being fabricated for use not only in a research submarine but also in SSN 637 class attack submarines. These receivers should have approximately a [deleted] improvement in signal-to-noise ratio over the crude equipment used in 1981. Performance predictions for experiments to be conducted in 1984 using this equipment are based on scaling from the 1981 results. With high confidence we expect to be able to communicate to depths of more than [deleted.] Depths in excess of [deleted] [deleted.] The SLCAIR-84 experiments will not constitute an operational test, but the technology will be compatible with installation in fleet aircraft and submarines. DARPA is working with the Navy to define and fund a follow-on series of tests using carrier aircraft-qualified equipment under realistic battlegroup conditions at sea in (d). Calculations show that this equipment should be capable of communicating with submarines in excess of [deleted] to better than [deleted.]

This year we are spending $6.4M on the SLCAIR tests to be conducted in 1984. We have requested $4.8M for SLCAIR in FY84 as part of the overall SLC request of $23.0M. The funding level drops because the major cost is in receiver and transmitter development and fabrication which will be complete by early 1984. DARPA intends to fully fund the SLCAIR project through the 1984 test series.

Question: DARPA is asking for $50M in its FY1984 budget request for supercomputers. Last year only $6M was spent on this effort. Why is DARPA moving out so fast in this particular area? Could DARPA execute this program at a lower level of funding than is requested?

Answer: The next major advances in areas such as ultra smart weapon systems, autonomus vehicles and military assessment systems will rely heavily on machines that can manipulate knowledge as a basic enabling technology. The current class of machines which are used in artificial intelligence (AI) to perform symbolic computations are totally inadequate to meet future defense needs, and there are no on-going commercial developments which will meet these needs. Survivable and high performance components such as gallium arsenide integrated circuits and optical input/output devices are needed to provide radiation tolerance and multigigabit/sec signal/data transfer rates. The DARPA initiative in supercomputers is an integrated program that addresses research in architecture and languages, microelectronics and electro-optical technologies and subsequent insertion into military systems. The $6M which is being spent in FY1983 was used to initiate the program in mid-year, and anticipated an expansion to $50M in FY1984. Efficient initiation at the requested funding level is possible due to building upon pertinent components of the existing Agency technology base program, and the effort expanded the last 18 months to define and plan this new initiative. A lower level of funding would extend the time needed to develop the supercomputer technology and its impact would be to delay the transition and introduction of technology that DARPA believes is vitally necessary to solve major Defense problems.

Question: Please outline how DARPA would manage the program at the $25M funding level. Please outline for the committee how much funding DARPA intends to put into the supercomputer between FY1984 and FY1988.

Answer: At the $25M level, attainment of the objectives of the planned program in supercomputers would be seriously delayed. Research would proceed at a reduced level in parallel architectures and languages, tool development, and applications such as speech understanding and vision. All work on the insertion of high performance microelectronics and electro-optical devices into specific military systems would be deferred, and the gallium arsenide pilot production lines effort would be limited to one contractor. DARPA plans to invest approximately $0.5 billion in supercomputation between FY1984 and FY1988.

Question: What are some potential defense applications for supercomputers?

Answer: Potential defense applications for supercomputers include: Autonomous systems which can process sensor data (including vision), plan actions, and carry out task execution. Battlefield assessment in which data from various sensors is interpreted, integrated into a knowledge base and an intelligent assessment presented to the battlefield commander. Expert systems which assist the user in performing a task; for example, a "pilot's assistant" which would aid a pilot in flying an aircraft and operate in a high radiation environment.

Question: DARPA is requesting $35 million dollars for the forward swept wing demonstration. When will the first flight of the X-29 occur?

Answer: First flight of the X-29 is scheduled to occur in April 1984. Following initial contractor functional flight tests the aircraft will be transported to Edwards AFB where NASA will expand the flight envelope and conduct the concept validation testing of the multiple X-29 advanced technologies. This phase of testing is expected to last approximately 18 months.

Question: Is DARPA now comfortable with the results of the wind tunnel tests that have been conducted on the X-29?

Answer: The wind tunnel testing of the X-29 program has provided a data base of the design of the experimental aircraft. The configuration has changed little since the preliminary design and recent NASA and contractor wind tunnel tests, which have essentially confirmed earlier results, provide confidence to proceed with the planned low angle of attack and high speed testing of the X-29. Additional high angle of attack and stall/spin wind tunnel testing and simulation will be completed before the aircraft flies at high angle of attack. NASA is planning to conduct this additional testing.

Question: The forward swept wing is said to be aerodynamically unstable. What measures have to be taken to insure greater stability in this particular type of airframe design?

Answer: The forward swept wing by itself is not inherently unstable. The X-29 configuration (wing, body and canard), however, has been designed to be unstable in the pitch axis during subsonic flight to achieve high aerodynamic efficiency throughout the entire flight regime. The wing/body combination is neutrally stable. The pitch instability occurs because the primary pitch control surface is the canard mounted forward of the wing. The canard is a full authority control surface driven by a three channel, multiply redundant digital control system. It is the redundancy of the control system that insures stability. The design philosophy to use a canard and rely on the control system to stabilize the configuration can be applied to aft as well as forward swept wing aircraft and many advanced fighter designs use this approach. The objective of this design is to reduce the drag throughout the flight envelope, especially in supersonic flight, and produce a more maneuverable, smaller and lighter aircraft.

Question: Is the digital fly-by-wire effort applicable to air frames other than the forward swept wing?

Answer: Digital flight control systems are emerging as state-of-the-art and have been pursued because of their flexibility, anticipated ease to update and change, and capability to integrate numerous control functions. The use of three control surfaces to control the X-29 and possible future integration of aero-propulsion control modes make the X-29 a particularly interesting test bed for a digital system. Experimental digital systems are flying in both a NASA F-8 and a USAF AFTI-16 aircraft. Operational digital systems control the Navy F-18 and the Space Shuttle and a digital system has been designed and tested as a possible replacement for the F-16 analog system.

Question: What is the weight of the current X-29 prototype aircraft, and describe the approximate amount of scaling that would have to be done to scale up the X-29 into a fighter aircraft?

Answer: The X-29 zero fuel weight is 14,000 lbs with a take off weight of 17,500 lbs, approximate weight and size of a lightweight fighter. The X-29, however, is not missionized; it is not capable of dropping ordnance and the flight test instrumentation replaces normal mission avionics. The X-29 was designed to operate in the general flight regime of current fighters (F-16, F-20) to be able to validate an integrated set of advanced technologies in the most demanding and most promising environment for application. All of the structures, aerodynamic and flight control technologies will have direct application to future fighter designs even though any future design would obviously depend on mission requirements. The design techniques and test results of the X-29 program are intended for use in any future fighter application and should scale easily to larger vehicles.

Question: Does DARPA have a program interface with the Air Force Advanced Tactical Fighter Program Office?

Answer: DARPA works directly with the Air Staff office responsible for the Advanced Tactical Fighter (ATF). The Air Force is the DARPA agent for the X-29 and has formed a program office in the Flight Dynamics Laboratory at Wright-Patterson Air Force Base. The X-29 Program Office keeps the ATF Program Office at Wright-Patterson informed of the X-29 program status.

Question: Please describe how much funding has been spent on the X-Wing technology effort to date.

Answer: Total expenditures thru FY 82 amount to $19.5M with $14.5M from DARPA and $5.0M from the Navy.

Question: What have we learned and accomplished with the technology effort?

Answer: We have learned that it is technically feasible to build an air vehicle with the high speed/altitude/range performance of a transonic fixed wing aircraft and the low downwash, excellent hover endurance and unexcelled low speed handling qualities of a helicopter. In particular, we have developed and experimentally substantiated theories and design tools which permit relatively low risk in the dynamic conversion from helicopter to airplane mode and vice versa.

Question: Please outline the technical characteristics of the sub-scale RSRA airplane.

Answer: The Rotor Systems Research Aircraft (RSRA) is a unique in-flight facility for experimentally evaluating the flight dynamics, stability, control and aerodynamic/structural performance of an advanced rotor system such as the X-Wing. The X-Wing/RSRA test vehicle with auxillary wings and jet propulsion has a gross weight in excess of 30,000 pounds. The X-Wing rotor itself will have a lift capability of approximately 20,000 pounds, so that all or some of the additional lift will be carried on the auxillary wings. The RSRA vehicle will evaluate in-flight the synergistic combinations of the advanced circulation control rotor and pneumatic controls, the fore/aft swept wing aerodynamics, advanced composite structures and advanced fly-by-wire flight controls. Successful demonstration of the X-Wing rotor will enable a major technical advance in the field of VTOL aircraft.

Presidential Direction

Question: On March 24, the President announced his decision to initiate an intensive study and development program to defend the U.S. against ballistic missile attack. Directed energy technologies were given a major emphasis in the President's directive. What management initiative has DARPA taken within the past month to respond to the decision of the President?

Dr. Cooper: DARPA has assessed the relevance of its major technology efforts in preparation for DoD efforts to respond to the President's call for a comprehensive and intensive effort to define a long-term research and development program to achieve a goal of eliminating the threat posed by strategic nuclear missiles. The President's call was not based on, nor did it emphasize, any particular technology. Rather he called for the exploitation of the rapid progress in such DARPA and Service technology efforts as advanced missile surveillance; data processing and storage; sensors and sensor arrays; acquisition, pointing, tracking, and designation; electromagnetic launchers; hyper-velocity impact warheads; and directed energy.

Question: Will the new direction given by the President to the space laser program result in a modification to the DOD Space Laser Program Plan, which now calls for an investment of $900 million between 1982 and 1988 for the Program?

Dr. Cooper: We would expect that the President's recent initiative will influence the DOD Space Laser Program Plan. It would be premature, however, to speculate on how the Plan might change. We expect to continue the execution of the program as currently planned while reviewing it and other technologies in the context of the President's initiative.

Question: Will the new directive accelerate the milestone FY 1988 for deciding on whether to conduct an on-orbit demonstration of a space-based laser?

Dr. Cooper: The President has called for the definition of a long-range R&D strategy. Prior to completion of this plan, it is premature to speculate on how the President's initiative might impact when a decision can be made to conduct an on-orbit demonstration of a space laser.

Program Overview

Question: Please summarize the total funding budgeted for space-based laser technology and give us the grand total. How does the FY 1984 total compare to 1983 and 1982 fiscal years? For the record, please supply a precise, side-by-side comparison of all Defense Department funding for all space-based laser work for FY1983, budgeted for FY 1984, and projected for FY 1985. Provide figures to the budget activity and program level.

Dr. Cooper:

SPACE BASED LASER FUNDING SUMMARY
Fiscal Year 1984 President's Budget Request
($ in millions)

	Feb82 FYDP FY 82	Feb83 FYDP FY 83	Feb83 FYDP FY 84	Feb83 FYDP FY85
Army SBL p/o BMD 63304A	2.1	2.5	3.6	4.8
Air Force				
62601F #3326(Portion)*	4.7	7.4	4.7	5.5
63603F (64406F)	20.0	0	36.1	35.9
64406F (HEL Portion)	0.2	0.4	0.2	0.3
Air Force Subtotal	24.9	7.8	41.0	41.7
DARPA HEL				
62301E ST-3 (space portion)	26.5	24.9	19.5	19.5
62711E EE-7 TALON GOLD**	25.6	35.0	61.0	67.6
62711E EE-8 ALPHA	20.4	24.9	43.1	54.5
62711E EE-12 LODE	13.2	14.2	23.5	33.0
DARPA Subtotal	85.7	99.0	147.1	174.6
TOTAL	112.7	109.3	191.7	221.1

*Generic technology applicable to space
**This chart does not show funding required in the Space Test Program (STP, PE 63402F) to support TALON GOLD.

Question: Does the fact that the laser programs have come to take up such a large percentage of the DARPA budget tended to act as a bureaucratic brake on future laser program growth?

Dr. Cooper: No. The DARPA role in developing the DoD technology base is to seek out and exploit innovative, high risk technologies which have the potential to enhance national security in major ways. In the process, we seek to resolve the risks of innovative technology before major system commitments are established by the Services. This is DARPA's role in the execution of the Space Laser Program Plan. The role of the Air Force and Army is to resolve those system related issues that provide the rationale for a major development commitment -- system definition, effectiveness, utility, and survivability.

Technical Feasibility

Question: Significant uncertainties exist with respect to the military capabilities of space-based lasers. The current DoD program is gearing up to an end of FY (d) decision date on whether to initiate weapons development.

Is it technically feasible to resolve the uncertainties you mention -- such as the projected weapons performance levels, ultimate weapon effectiveness, and growth capability of the technology -- earlier than FY [deleted.]

Dr. Cooper: It is possible to resolve the major uncertainties earlier than scheduled in the current funding-limited, DoD Space Laser Program Plan. The price one pays beyond the added resources needed for acceleration and for schedule hedges is in increased risk in demonstrating convincing levels of technology readiness. Appropriate schedule/risk trade-offs were conducted during the development of the Space Laser Program Plan, and they will be considered again in developing, over the next few months, an R&D strategy that is responsive to the President's initiative.

Industrial Capability

Question: Last year, in answer to subcommittee questions, DARPA stated that these following tasks had to be undertaken to integrate DARPA TRIAD technology into a [deleted] weapons demonstration:

- Integrated system support, ground support equipment
- Design and fabrication of space-qualified hardware
- Develop surveillance system
- Develop heavy-lift launch vehicle
- Establish the C^3 net for the demonstration
- Develop fine control software
- Ground test each subsystem
- Integrate subsystems with the spacecraft and subsequent ground testing
- Integrate the spacecraft with the launch vehicle

Does DARPA believe that the fulfillment of all of these tasks is possible, given current state-of-the-art of the technology? Or will we be facing major, new developmental programs which could stress the capability of industry to respond to a design to conduct an on-orbit demonstration?

Dr. Cooper: We see no reason to expect that industry's capability will be unduly stressed by the current plans for space laser development. What you have described are the essential elements of an operational space laser deployment that must eventually be realized over the validation, engineering development, and production phases of weapon development. The performance requirements levied on surveillance, C^3, and launch vehicles by an operational space laser system are currently under study in the Air Force space laser activities. An on-orbit validation (demonstration) need not require comprehensive C^3 and surveillance, and could be designed to be launched by the shuttle. Conceptual definition of this validation phase is specified in the Space Laser Program Plan as being completed just before the FY [deleted] decision milestone. Over the [deleted] life of the laser plan and subsequent development phases, other on-going technology efforts in the Services and DARPA in data processing, sensors, surveillance, advanced launch vehicles, etc. are expected to provide the tech base to support needed advanced capabilities in the supporting systems.

Mirror Production

Question: Last year DARPA stated that progress in recent years on ALPHA strongly suggested that a [deleted] chemical laser would be built. Yet the pacing item seems to be the increased time required [deleted] to fabricate a [deleted] mirror), as compared to a [deleted] mirror.

We could begin quantity production of [deleted] diameter mirrors) [deleted] after the demonstration of the [deleted] ground based LODE program in FY [deleted.] However, if establishment of mirror production facilities began during the prototype program, a [deleted] mirror could be available (d) years after the prototype.

What are the advantages and disadvantages of accelerating mirror production?

Could we build the new plants and facilities fast enough to accomplish such an acceleration?

Dr. Cooper: The LODE portion of the present DARPA Space Laser TRIAD Program is designed to develop and demonstrate the key technology features required for [deleted] optics and many of the key technologies needed for optics of [deleted] or more in diameter. For example, a [deleted] mirror approach has been adopted for the [deleted] system with the specific intention of pursuing a technology which can be extended to [deleted] or larger. This [deleted] program is critical--it cannot be avoided developing [deleted] optics directly; the risks and unknowns are far too great. This program supports the major program decision point in (d) which, if the TRIAD is successful, may lead to a technology oriented on-orbit demonstration that could be launched in the (d) time frame. If successful, this could lead to a weapon system prototype by the late [deleted.]

Since large mirrors are not needed for several years, there is no apparent advantage to accelerating mirror production now. In fact, it would be extremely risky to do that since the technology for [deleted] mirrors will not be established and verified until completion of LODE in FY [deleted.]

Given proper definition of [deleted] mirror designs and their associated production requirements, it appears that the Nation can develop new facilities and plants fast enough to support the production requirements of the late 1990's. The investment would be significant, and the lead times would be long, so manufacturing technology development and facilitization would need to start as soon as possible after FY88.

Pointing & Tracking

Question: Ballistic missile defense applications of space-based chemical lasers will require pointing and tracking accuracies of [deleted.] What initiatives have been undertaken within the DoD Space Laser Program to assure that the accuracies required for ballistic missile defense can be achieved?

Dr. Cooper: The TALON GOLD Experiment is the first step in advancing the state-of-the-art from the approximate [deleted] accuracy demonstrated to date to the [deleted] required for space applications with a chemical laser system. However, by increasing the magnification of the pointing telescope, the basic tracking and precision pointing architecture incorporated in the TALON GOLD design is [deleted] accuracy required for ballistic missile defense missions.

This [deleted] is ultimately limited by the intrinsic noise of the inertial sensors in the control system. To realize the [deleted] accuracy, the noise of the inertial reference unit must be decreased from the [deleted] level in the TALON GOLD design down to approximately [deleted.] To achieve this, an advanced inertial reference unit program has been initiated with the Charles Stark Draper Laboratory to design, develop and demonstrate disturbance isolation and inertial sensors having an accuracy goal of [deleted.]

NAVY OPERATION AND MAINTENANCE

FY84 O&MN, STRATEGIC FORCES - BA 1

QUESTION: Please define the source for "Kings Bay Contract authority." (Ref 1-1-3)

ANSWER: Due to the distance of Kings Bay, Ga, from the Naval Supply Center Charleston, SC, end strengths, salary funds and contracting authority were functionally transferred from NAVSUP to TRIDENT to provide more timely support to the Base, Squadron and tender. The offset is included in the functional transfer line on page 7-003 of vol. 2, Operation and Maintenance Budget.

QUESTION: Why is an additional $4.8 million required for Bangor Submarine Base maintenance requirements? (Ref 1-1-3)

ANSWER: An additional $4.8 million is required for Bangor Submarine Base maintenance for the following reasons:

- o When a facility is built under the MILCON program the facility is under warranty for one year. After the warranty period, required repairs and the maintenance of installed equipment become the responsibility of the base. Many facilities at Bangor are moving into this category.
- o All facilities at Subase Bangor are not new facilities. As these facilities get older the Base Operating Services Contractor is given more hours in his contract to maintain these facilities.
- o Approximately 180,000 SF of new facilities will be opened for use in FY 1983. These facilities will require routine maintenance which is not a warranty item.
- o There is a shortage of warehouse and administrative space at Subase Bangor. Older facilities are being repaired and renovated to accommodate these shortfalls.
- o There is an increase of 6.7% in the total population at Bangor from FY82 to FY83. This increase results in a higher usage rate, particularly of personnel support facilities, increasing the MRP requirement.

STRATEGIC FORCES

QUESTION: Please detail the $53 million increase for "other" pricing adjustments. (Ref. 1-1-4)

ANSWER: The "other" pricing adjustment of $53 million reflects inflation of the FY 1983 program to FY 1984 except for annualization of direct pay, stock fund and industrial funds which are identified separately. The major categories contained in "other pricing" are:

	($ million)
Ship Maintenance by Contract	13.7
Intra Government Purchases	2.9
Equipment Maintenance by Contract	3.9
Non Industrial Fund Utilities and Communications	.5
Contractor Engineering and Technical Services (CETS), professional and management services	1.2
Equipment, Funiture and Non Stock Fund Supplies and Material	.5
Engineering Contracts	29.8
Total	$53

TRIDENT PROGRAM

QUESTION: Please describe the $5.5 million requirement for hull, mechanical and electrical repair.

ANSWER: The major portion of the 5.5 million request is for repair and refurbishment action ($4.6 million) associated with Trident Planned Equipment Replacement (TRIPER) equipments and components. The balance of funds requested ($900,000) is needed to continue providing engineering services to investigate and resolve technical operating problems which arise due to ship operations. Areas to be covered include submarine silencing component support, missile gas and vent valve technical reviews, and cathodic protection support on delivered OHIO Class submarines. (Ref 1-1-7)

QUESTION: What is the $15.6 million requirement for additional shipboard and shore facilities?

ANSWER: The $15.6 million request specifically is needed to support Command and Control System (CCS) technical effort associated with OHIO Class submarines delivered to the Fleet. This budget has increased over last year's request since additional ships and increased ship operating months have required the Navy to provide technical services in the areas associated with CCS performance analysis/operational guidelines, configuration management of changes (to ensure software and hardware conform to the technical baseline established for each ship), resolve technical problems reported by the Fleet associated with tactical software and hardware maintenance and finally providing technical support for the TRIDENT Refit Facility unique support equipment.

QUESTION: Detail the $26.7 million increase for "other" pricing adjustments. (Ref. 1-1-10)

ANSWER: The other pricing adjustment is the projected FY 1984 price growth of 5.1 percent for purchases of material and services for other than stock and industrial funds. Detailed breakdown follows:

	($ millions)
FY 1983 Current Estimate	$658.5
Less Civilian Personnel Compensation	(-) 35.5
Less Travel Costs (Per Diem only)	(-) 1.4
Less Stock Fund Purchases	(-) 3.3
Less Industrial Fund Purchases	(-) 93.6
Adjusted FY83 Estimate	$524.7
FY 1984 Price Growth	x .051
Other pricing adjustment	$ 26.7

The major categories contained in "other pricing" are

	($ millions)
Equipment Maintenance by contract	3.0
Intra Government Purchases	1.4
Engineering Contracts	22.1
Contractor Engineering Technical Services (CETS)	.2
	$26.7

QUESTION: What is the basis of the requirement to establish a towed array signal processing equipment training capability at Sub Base New London? (Ref 1-1-10)

ANSWER: Towed Array Signal Processing Equipment (TASPE) will be installed on all POSEIDON SSBNs homeported at New London. Personnel Training must be conducted at the homeport necessitating a training capability for TASPE at the Navy Submarine School (SUBSCOL), New London.

QUESTION: Civilian personnel are expected to increase almost 100 percent in FY 1984 for strategic weapons system activities. For more than two years, the civilian end strength has been far ahead of workload because of prior delays in the Trident program. Why is this increase necessary now that workload is catching up with end strength? (Ref 1-1-12)

ANSWER: There is no increase in civilian personnel in FY 1984. The apparent 100% increase is the result of changing the categorization of civilian personnel at the Strategic Weapons Facility, Pacific and POLARIS Missile Facility, Atlantic from Navy Industrial Fund to direct funding in FY 1984. The offsetting decrease is shown on page 64 of the Department of the Navy Supporting Data for Fiscal Year 1984 Budget Estimates. Net change over FY 1983 is +1 billet.

QUESTION: Although the schedule of increases and decreases attempts to justify a $5.6 million increase for USNS VEGA per diem days, the performance criteria indicate an actual decline in per diem days. Further, conventional underway steaming hours appear to be declining by 30 percent from FY 1983. Please explain this discrepancy. (Ref 1-1-14)

ANSWER: The increased operations for USNS VEGA are offset by a decline in operations for USNS VICTORIA shown on page 1-1-16. Although VEGA is scheduled to operate for a short period in late FY 1983 there is a decline of 47 per diem days for transition of these two ships and a 3 day increase due to FY 1984 being leap year (1 day each for 3 ships).

	Per diem days		
	FY 1983	FY 1984	Diff.
VICTORIA	320	0	-320
VEGA	92	366	274
MARSHFIELD	365	366	1
RANGE SENTINEL	365	366	1
	1142	1098	-44

The decline in conventional underway steaming reflects one strategic tender in overhaul and adjustments for transitioning of tenders to and from tending/overhaul locations. Funding decrease related to tender changes is shown on page 1-1-15.

QUESTION: What is the basis of the $1.6 million increase for support for the Trident submarine program? (Ref 1-1-15)

ANSWER: The $1.6 million represents the program increase (excluding inflation) coincidental to the TRIDENT force growth. Operational experience for USS OHIO (SSBN 726) which joined the fleet in FY 1982, forms the basis for the TRIDENT operations budget.

FY84 O&MN, SSBN SHIP MAINTENANCE

QUESTION: Why is the cost of Trident intermediate maintenance increasing $5.2 million at the same time additional refits are planned? (Ref 1-1-19)

ANSWER: The TRIDENT refits are all conducted between patrols at the TRIDENT Refit Facility Bangor, WA. The refits include both centrally managed material and technical support, budgeted in the "TRIDENT Program", and intermediate maintenance budgeted within the "FBM Ship Maintenance" Program. Thus, as the TRIDENT refits increase from 5 in FY 1983 to 10 in FY 1984 the intermediate maintenance requirement increases.

QUESTION: Is the $2.9 million increase for technical and facility start-up costs for BQQ-9 common to the TASPE effort at Sub Base New London? (Ref 1-1-19)

ANSWER: The $2.9 million increase for technical and facility start-up cost for the BQQ-9 is not common to the TASPE effort at Sub Base New London. The technical and facility starting requirements that are being funded for AN/BQQ-9 include such efforts as the establishment of procedures for the logistic support and repair programs, establishing the trouble failure reporting (TFR) system, including development of symbol sheets, establishing configuration accounting and control procedures to insure equipment accountability throughout its life cycle, establish and operate the software maintenance facility, etc. These efforts must be accomplished prior to delivery of the first equipments so that the processes and procedures are in place when the equipment becomes available.

QUESTION: Please explain the $2.4 million "increase of two SSBN forward site modernizations over FY 1983 program". (1-1-19)

ANSWER: The number of SSBN availabilities increase from 17 in FY 1983 to 19 in FY 1984. Each forward site modernization (FSM) availability provides for the installation of selected high priority alterations during a scheduled inport period between patrols. The alterations include noise quieting

of pumps and fans, sonar and communications antennae improvements and other mission, command and control alterations. In addition to the increase of 2 availabilities, the amount of alterations programmed increases in FY 1984. Accordingly, the program growth is $11.7 million vice the stated $2.4 million. As also noted in the answer to the next question these two values ($2.4 million and $11.7 million) were reversed from their correct program area. The $2.4 million increase is for selected ship records as discussed in the following answer.

QUESTION: Why does the update of selected ship records require $11.7 million increase? (Ref. 1-1-20)

ANSWER: As noted in the preceding answer the program increase for ship selected records is $2.4 million instead of the stated $11.7 million. The $11.7 million is the required increase for alternations in the forward site modernizations (FSM) program as discussed above. The two values were inadvertently reversed within the Ship Maintenance Program submission. The increase for ship selected records reflects the increased number of alterations.
The FY 1984 program requires the update of ships selected records for one submarine tender overhaul and two SSBN forward site modernizations more than the FY 1983 program.

QUESTION: Please describe the "SALT-related" inactivation requirement. Provide further detail for $6.9 million increase. (Ref. 1-1-20)

ANSWER: Existing arms limitation agreements limit the number of submarine ballistic missile launchers that the United States may have. Therefore as new construction Trident submarines commence sea trials equal launchers must be dismantled. With each new 24 tube SSBN, 1 or 2 16 tube POLARIS type submarines must be dismantled.

The increase reflects inactivation of three submarines in FY 1984 compared with two and advance preparation costs in FY 1983. If SALT renegotiation negates this requirement, these funds will be required for restricted availabilities (RAVs) for these older submarines to permit continued unrestricted operations.

SUB - TENDER OVERHAUL

QUESTION: The tables for ship overhaul programs demonstrates a $33 million cost for overhaul of one AS tender. Yet the descriptive summary justifies a $46.5 million increase for one submarine tender overhaul in FY 1984 as compared to none in FY 1983. Which estimate is correct? (Ref. 1-1-19)

ANSWER: Both are correct. The $33 million represents the FY 1984 cost for the "repairs only" during overhaul, including inflation. The $46.5 million represents the program increase (excluding inflation) for the tender including ship repairs, modernization and additional capability for the overhaul of submarine SONARs as follows:

Overhaul Costs	$ Million
Repairs	30.2
Modernization	16.1
SONAR overhaul	.2
	46.5

Question: Please explain the performance criteria description of $16.9 million for submarine program support. (Ref. 1-1-22)

Please describe the performance criteria indicator of $18.4 million for program support. (Ref. 1-1-21)

Answer: The performance criteria "Program Support" indicates funding primarily for design services. Design services for strategic forces include:

(a) Basic Alteration Class Drawings (BACD) which are the first installation drawings prepared for a shipalt.

(b) Ship Selected Records (SSR) which are the updates of ship documents of significant value to operation, maintenance and logistic requirements consisting of selected record drawings, selected records data, allowance lists, and damage control drawings.

(c) Alteration development services consisting of engineering analysis, scope and design for an alteration scope or in support of two or more alts by yards for Ships Logistic Managers, technical services by yards and Ships Logistics Managers, yard reproducing copies of plans.

(d) Miscellaneous document services: including copies of records for ships and

(e) Planning yard services at General Dynamics, Groton, who acts as planning yard for SSBNs.

Costs of design services are incurred two (2) years prior to modernization. The $16.9 million (Ref 1-1-22) and $18.4 (Ref 1-1-21) reflect design services costs for strategic forces programmed modernization in FY 86 ($80.9M) and FY 84 ($101.4M).

STRATEGIC BASE OPERATIONS

QUESTION: Please provide estimates for real property maintenance at the Naval Test Unit, Special Weapons Facility Pacific, and Polaris Missile Facility Atlantic. (Ref. 1-1-33)

ANSWER: Estimates for Real Property Maintenance at the Naval Ordnance Test Unit, Special Weapons Facility Pacific and Polaris Missile Facility Atlantic are:

	($000) FY 1983	FY 1984
Naval Ordnanance Test Unit	3517	2157
Special Weapons Facility Pacific	3702	3603
Polaris Missile Facility Atlantic	334	294
Total	6887	5388

QUESTION: Given the increased level of funding over the past three years for Bangor operations, why is an additional $4 million required for administrative functions, retail activities, vehicle maintenance, and MWR activities at this relatively new base? (Ref. 1-1-36)

ANSWER: The following new facilities require support:

Warehouse	33,747 SF
Youth Center	55,940 SF
Chapel	7,680 SF
Child Care Center	9,730 SF
Off Crew Admin Bldg	58,000 SF

These facilities will require common service support i.e. janitorial, grounds maintenance, pest control services, etc. In addition there is an increase in the O&M support requirements for the Chapel, Child Care Center and Youth Center. There will be an increase of 11% in total population (military and civilian) being supported by the base from FY 1983 to FY 1984. This is in addition to the retired personnel and their dependents of approximately 15,000 that will continue to come aboard the base for services as these services become available. There exists in FY 1984 a requirement to purchase COSBAL items from the stock fund now that the base is operational (+1800). These are insurance items that were carried in the Stock Fund while the base was developmental in nature. In FY 1984 there is a requirement to overhaul/renovate a locomotive (+315K).

QUESTION: Please explain the nature of "miscellaneous supplies, material's and contractual services" which require $1.5 million at the Kings Bay facility. (Ref. 1-1-37)

ANSWER: The nature of "miscellaneous supplies, materials and contractual services" at the Kings Bay Facility are as follows:

- o additional medical supply support (non-stock fund) to support an increase in patient workload as eligible population increases and non-stock fund materials for vehicles and equipment. +120
- o increase in purchased communications (additional access lines). +24
- o increase in stock fund purchases for: fuel oil to support new facilities, start up of a new central thermal plant, additional vehicle and equipment support and medical supplies to support an increase in patient workload. +412
- o rental of ADP equipment to tie into Navy's central military and civilian personnel file. Equipment will also store and retrieve architectural and engineering specifications for base facilities. +30
- o increased contractor support costs for operation of the water sewer and electrical distribution systems, custodial services for an additional 76 KSF, expansion of pest control, around the clock operation of a new ambulance and additional workload in the base owned telephone exchange. In addition there is an increase for contractor personnel salaries, FICA FITW and health insurance. Due to a shortage of Navy medical personnel (specialists) it will be necessary to contract for X-Ray, Radiology and other medical specialties. +883

QUESTION: What accounts for the increase of over 1,100 civilian personnel in the last two years for strategic base operations? (Ref. 1-1-38)

ANSWER: The increase of over 1,100 civilian personnel in the last two years for strategic base operations relates to the number of civilians (dependents, retired and dependents of retired) utilizing those sevices such as Chapels, Family Services Centers and laundry and dry cleaning facilities at strategic bases. The increase is not in number of civilians working in base operations.

GENERAL PURPOSE FORCES

QUESTION: The General Purpose Forces summary table demonstrates an increase of $23.7 million for foreign currency fluctuation account transfers. Given the improvements in the currency exchange rates, why is this increase required. (Ref. 1-2-5)

ANSWER: As part of the Congressional markup of the FY 1983 Department of the Navy budget there was a reduction of $107.1 million for foreign currency rate changes. The reduc- reduction in funding was based on specified foreign currency rates which were provided in the Congressional report. The House Appropriations Committee report (no. 97-943, pp. 63-64) stated that if the rates specified by Congress were not realized, transfers from the Foreign Currency Fluctuation, Defense account should be used to cover any deficit. According to Department of Defense analysis, the rate specified by Congress will not be achieved in FY 1983 and an alternative set of rates were developed. Since all variances in foreign currency transactions are reflected in the Foreign Currency Fluctuation account in the General Purposes Forces budget activity, the difference between the Department of Defense rates and the Congressional rates requires an increase of $23.7 million in this account. The transfer of $23.7 million in FY 1983 is the amount of anticipated losses in foreign currency transactions as a result of obligating at the Congressional rate rather than the Department of Defense rate.

AIRCRAFT OPERATIONS

QUESTION: Last year the Navy estimate for FY 1982 flying hours assumed an inventory of 4,293 aircraft flying slightly over 1.3 million hours at a cost of $1.7 billion. However, the FY 1982 actuals demonstrate an inventory of some 350 aircraft fewer than originally projected, flying 50,000 hours less than budgeted but at approximately the same cost. Current estimates for the FY 1983 program indicate the same decline in flying hours versus the budgeted estimate, yet a growth in the active aircraft inventory. Given these varying estimates, what confidence does the Navy have that the FY 1984 aircraft inventory objective of 4,441, flying roughly 1.8 million hours, will be achieved?

ANSWER: The aircraft inventory includes aircraft assigned to Active and Reserve squadrons, Research & Development and Pipeline (aircraft in rework). The actual column for aircraft inventory however is a snapshot in time based on aircraft in operating status (physically assigned to a squadron) at the end of the fiscal year. The average operating aircraft count (which is included in the performance criteria and is used to develop the flying hour program) is a more accurate indicator of aircraft available for use with active forces. The flying hour program is based on the requirement to train aircrews. Having fewer aircraft does not necessarily decrease the requirement to train aircrews, but, it does increase the utilization rate (more hours flown per aircraft) of available aircraft.

The table below compares last years FY 1982 estimate of average operating aircraft and flying hours as compared to the FY 1982 actuals.

Flying Hour Program
In Thousands of Hours

	FY 1982 Estimate		FY 1982 Actual		Difference	
	Aircraft	Hours	Aircraft	Hours	Aircraft	Hours
BA-1	13	20	13	16	0	-4
BA-2	3218	1254	3014	1253	-204	-1
BA-3	6	4	10	4	+4	0
BA-8	881	542	878	505	-3	-37
BA-9	27	10	22	9	-5	-1
Total	4145	1830	3937	1787	-208	-43

In FY 1982 the Navy underflew by 43,000 hours. However, 37,000 of the total occurred in Undergraduate Pilot Training (BA-8) and was due to a drop in student throughput; not by a lack of aircraft. The Navy fully expects to achieve the FY 1984 flying hour program.

AIRCRAFT INVENTORY

QUESTION: How is the aircraft inventory estimate derived?

ANSWER: The estimate of the total out-year DON aircraft inventory is derived from the algebraic sum of gains resulting from new production deliveries and losses to attrition and retirements. Attrition is estimated from actual historical losses and retirements are forecast on the basis of expiration of service life. From this total inventory is then subtracted the assets which are required to fill the SDLM/depot level repair pipeline. This pipeline is estimated from prior year actual SDLM turn-around time and days in special rework. The balance of the inventory is then available for programming to meet force structure requirements which generates the flying hour program.

FLYING HOURS

QUESTION: As part of the FY 1983 justification material the Navy provided TACAIR/ASW aircraft operations by aircraft type as part of the performance criteria and evaluation. Since this information was not provided as part of the FY 1984 justification material, please, provide this information for the record to include average operating aircraft, total flying hours, total costs, flying hours per aircraft, and cost per hour for each aircraft type.

ANSWER: The information requested was provided as supplementary justification material to the Authorization and Appropriations Committees shortly after transmittal of the budget to the Congress. Another copy is attached.

QUESTION: The FY 1983 budget justification data demonstrated an average operating aircraft inventory of 2,489 and flying hours of 970,000 for TACAIR/ASW aircraft. However, the FY 1983 estimates to accompany the FY 1984 budget justification material demonstrates a total of 2,165 average operating

aircraft and flying hours of roughly 833,000. In view of this historical pattern to overstate the operating aircraft inventory and flying hours, why should the FY 1984 projections be considered valid estimates?

ANSWER: The difference in presentation of the FY 1983 column of this year's budget and the FY 1983 request last year is due to the Operations budget restructure. The difference reflects the Fleet Tactical Support portion of TACAIR/ASW which is included as part of the Fleet Air Support program package.

The FY 1984 program is not the optimal program for operational readiness, but has been structured to achieve overall program balance with increased emphasis on material readiness, i.e., mission capable/full mission capable (MC/FMC) rates and spare parts.

QUESTION: The FY 1983 budget for flying hours projected a maintenance and proficiency to conduct operations at 86 percent of primary mission readiness. Given the revised projections for TACAIR/ASW operations, what is the current estimate of FY 1983 PMR?

ANSWER: The current estimate of FY 1983 is 83 percent, including 2% simulators.

	Primary Mission Readiness	
	FY 1983 Budget	FY 1983 Current Est.
Flying Hours	83%	81%
Simulators	3%	2%
Total	86%	83%

The decrease of 3 percent in Primary Mission Readiness (PMR) from last year's request is due to a revised simulator requirements, and increased maintenance costs which forced a reduction in flying hours.

PROGRAM FLYING HOURS

QUESTION: In recent years the Navy has used simulators to achieve two percent of PMR. Despite the planned reduction in FY 1984 flying hours, simulators still do not account for any more than two percent of PMR. Can the use of simulators be increased to partially compensate for this reduction in program flying hours?

ANSWER: Simulator utilization can only achieve approximately two percent of PMR. Increased simulator utilization will not achieve a higher level of PMR contribution because of limited but necessary training obtainable through simulator use. Maximum use of simulator hours to enhance readiness is achieved in compliance with Type Commander's standard training matrices and fleet squadron training syllabi. Once the training evolutions that can be completed in simulators are accomplished and the aircrews qualified in those particular areas, repetitive accomplishment of the training will not contribute to training readiness or PMR.

QUESTION: With the introduction of an A-6, EA-6B, E-2C and two FA-18 squadrons requiring an additional $14.3 million, what are the savings associated with aircraft retirement? Please describe the requirements associated with new squadron activations. (Ref. 1-2-12)

ANSWER: The new squadrons listed above are part of the 13th Airwing, which is scheduled to stand-up in FY 1984 and make

its initial deployment in FY 1985. There are no savings associated with aircraft retirements as a result of the introduction of these new squadrons.

AIRCRAFT OPERATIONS

QUESTION: Considering the expensive maintenance requirements for F-4 aircraft, why is it $4.8 million more expensive to transition two F-14 squadrons? (Ref. 1-2-12)

ANSWER: It is not more expensive to transition from F-4 to F-14 aircraft. The $4.8 million request indicates that as squadrons transition to F-14's, flying hour requirements for the F-14 increase, while flying hours for the F-4 decrease.

The crew-seat ratio of an F-14 is higher than the F-4. Consequently, F-14 squadrons support more aircrews than F-4 squadrons, and therefore require more training and mission hours. Additionally, because of the relative complexity of the two weapons' systems, F-14 aircrews are funded more closely to 100% of the requirement than are F-4 aircrews. For example, the requirement for both aircrews is 276 hours annually. In FY 1984, F-14 aircrews are budgeted for 237 hours whereas F-4 aircrews are budgeted for 216 hours.

	Crew Ratio	Hours/month
F-14	1.21	20
F-4	1.17	18

FLYING HOURS

QUESTION: Please provide a break-out of the decreased flying hour program.

ANSWER: The information follows.

Flying Hour Program Decreases

	Hours	$ 000
A-6	-1870	-3343
A-7	-300	-300
F-4	-5409	-11309
EA-6	-106	-194
P-3	-4331	-4703
CH-53	-3100	-2282
CH-46	-84	-50
SH-2	-5199	-2445
SH-3	-118	-55
UH-1	-836	-324
OV-10	-294	-173
	-21,647	-25,178

QUESTION: The justification demonstrates a $4.2 million decrease for flying hours associated with drug interdiction support. Is it expected that the Navy will not be called upon to provide these services in FY 1984? (Ref. 1-2-13)

ANSWER: The FY 1984 estimate includes 1,080 hours and $860,000 for E-2C drug interdiction support. The level of

effort required in FY 1984 for drug interdiction support cannot be predicted more accurately at this time.

TACAIR FLYING HOURS

Question: Although the flying hour program remains relatively constant in FY 1984 over the prior year, there is an increase of nearly 1,800 military. What is the demand for the additional personnel?

Answer: There is no direct correlation between the Flying Hour Program (FHP) and military end strength requirements. The number of hours a squadron flies (Flying Hours Program) is based on its budget for fuel and related costs per flight hour. A squadron's manpower requirement (Squadron Manning Document levels) is driven by the squadron's mission, and not by the number of hours flown. Thus, the number of personnel required to operate a squadron will not vary significantly as a result of the number of hours the squadron flies.
The increase of 1,719 military personnel between FY-83 and FY-84 will man five new tactical squadrons associated with the 13th air wing, and will augment existing squadrons, bringing their manning closer to the levels determined by established Squadron Manning Document (SQMD) requirements.

FLYING HOURS

QUESTION: Why are an additional two C-1 COD aircraft required? (Plus $1.7 million. (Ref. 1-2-15)

ANSWER: The budget justification is in error. There is not an increase of 2 COD aircraft. The number of average operating aircraft actually decreases by 2. However, as shown on the performance criteria, the $1.7 million increase is still a valid requirement in that the utilization rates of the COD aircraft have increased by 100 hours annually (about 8 hours per month per aircraft) in support of deployed fleet operations.

QUESTION: With the activation of new FA-18 squadrons, why is $3.5 million required for further test and evaluation? Further, if such additional tests are required, why are they not funded in the RDT&E account? (Ref. 1-2-15)

ANSWER: The test and evaluation activity described in the justification is to conduct Follow On Test and Evaluation (FOT&E) in an operational environment of aircraft weapons and support systems; and to refine, enhance, and develop further the tactics and doctrine to ensure maximum combat effectiveness.

In previous budget submissions, this type of test and evaluation was included in the Air Special Support program package and in accordance with the revised Operation and Maintenance budget restructure this requirement is included under Fleet Air Support. This FOT&E is an appropriate O&M charge in accordance with Department of Defense budgeting guidelines.

AIRCRAFT OPERATIONS

QUESTION: Please explain further the savings accrued from the redistribution of flying hours in the fleet air support activity.

ANSWER: The redistribution of flying hours is not a savings but is a reapplication of resources which puts increased emphasis on material readiness. i.e., spare parts availability and mission capable/full mission capable (MC/FMC) rates. With the exception of Fleet Air Training, all Budget Activity 2 - General Purpose Forces flying hour programs show decreases.

OPERATING SUPPORT FLYING HOURS

Question: Again, with the decline in flying hours, why is the military end strength increasing some 500 personnel?

Answer: Since a squadron's manning levels are determined by its mission requirements and not by the number of hours flown, there is no direct correlation between the decline in flying hours and the increase in end strength.

The 500 personnel increase in aviation operating support forces between FY-83 and FY-84 is to man one new Direct Support Helicopter Squadron and to supplement the manning of other support squadrons to bring their manning levels closer to Squadron Manning Document (SQMD) requirements.

FLYING HOURS

QUESTION: Although the average number of operating support aircraft increases by FY 1984, the average cost per flying hour is increasing from $691 to $723 despite the decline in fuel costs and the number of flying hours. What factors explain this discrepancy? (Ref. 1-2-16)

ANSWER: The increase in the average cost per hour is due to increased contract maintenance costs (i.e., CT-39's, UC-12B, and C-9), and a change in the "mix" of aircraft such as 2 new FA-18's and 6 more H-53's which increase the average cost per hour.

Air Operations Support

QUESTION: Provide the FY 1984 budget estimate for the aircraft lease program to train military navigator personnel.

ANSWER: The fiscal year 1984 budget estimate for the Undergraduate Naval Flight Officer Training System Update (UNFO/TSU) program is $4.0 million. The UNFO/TSU program is for flight training support services for UNFOs who will enter the fleet either as radar intercept officers or tactical navigators. The Navy solicitation calls for the furnishing of services, including and incident to the providing of hours of flight instruction for aircrews. While aircraft will be utilized by the contractor to supply the services, the Navy will acquire neither title nor a leasehold interest in the aircraft.

Best and final offers were submitted on April 4, 1983. The contract, which is expected to be awarded by June 15, 1983, will

be a five-year multi-year services contract with one three-year option. This approach qualifies under the authority 10 U.S.C. 2306(g). The contract will be firm-fixed priced and funded through the O&M,N account. It is anticipated that services will commence in late fiscal year 1984.

SHIP OPERATIONS

QUESTION: Describe the mission and detail the overhaul/modification package for USNS SPICA (TAFS-9) as further justification for $27 million increase. (Ref. 1-2-19)

ANSWER: The conversion of the USNS SPICA to U.S. Navy AFS-1 MARS Class characteristics will consist of upgrade of helo facility, upgrade of the underway replenishment system, installation of a computer to support load list inventory management and a permanent communication suite. This conversion will be conducted in conjunction with the normally scheduled MSC biennial overhaul in FY 1984. The breakdown of the $27.0 million for conversion and overhaul is as follows:

Procurement ($000)	
- Underway Replenishment Equipment	4900
- Communications Equipment	2900
- Advance Material (LLT)	1900
Conversion/Overhaul Contract ($000)	
- General requirements (drawings, planning, documentation, engineering services, overhead)	2750
- Overhaul drydocking	2400
- Helo facility	6770
- Communication suite	650
- Computer facility	190
- Underway replenishment items	2810
- Operational requirements, safety items, regulatory body requirements	1730
Total	$27,000

QUESTION: Please provide further justification for the $1.1 million increase described as "increase for one extra day in FY 1984." (Ref. 1-2-19)

ANSWER: Cost of leasing units from the Military Sealift Command (MSC) is computed on an annual average cost per day for 365 days. FY 1984 being leap year, the costs reflect one additional per diem day of cost per unit. The $1.1 million represents the extra day for all leaseback units.

QUESTION: A total of $14.8 million has been justified for additional per diem days associated with the operation of the SIRIUS and STROMNESS, yet the performance criteria demonstrates a decline of nearly 100 per diem days in fiscal year 1984. What accounts for this discrepancy? (Ref. 1-2-19)

ANSWER: The budget justification reflects independent increases and decreases as opposed to a net change. The increase for SIRIUS and STROMNESS is offset by reduced operations for SPICA due to conversion/overhaul and inactivation of TALUGA (Ref. 1-2-20), as shown in the following table:

Ship	FY 1983	FY 1984	Diff.
SIRIUS	196	351	155
STROMNESS	0	243	243
SPICA	365	183	-182
TALUGA	335	0	-335
All others (one add'l day)	20	20	20
Total	896	797	-99

QUESTION: Detail the 19 new ship deliveries requiring an increase of $40.3 million by vessel. (Ref. 1-2-19)

ANSWER: The increase of $40.3 million supports full operations of 19 new ships and NEW JERSEY which joined the fleet in FY 1983, as follows:

Ship/Ship type	Ship Year increase	Cost at FY 1983 price ($M)
AD 44	.9	3.9
AO 186	.4	1.6
CG 47	.7	4.6
DD 997	.6	4.0
FFGs (+9)	4.3	15.8
PHMs (+2)	.3	.9
SSNs (+4)	1.1	1.3
NEW JERSEY (BB 62)	.4	8.2
	8.7	$40.3

QUESTION: Detail the hulls, delivery dates and costs per ship for the 15 new construction deliveries in FY 1984. (ref. 1-2-19)

ANSWER: The following ships are scheduled to deliver from new construction in FY 1984.

Ship		Name	Del. Date	Ops. Cost ($M)
CG	48	YORKTOWN	8/4/84	1.3
FFG	38	CURTS	10/8/83	3.7
	40	HALYBURTON	10/8/83	3.7
	41	MCCLUSKY	12/10/83	2.9
	43	THACH	3/10/84	2.6
	45	DEWERT	11/19/83	3.3
	46	RENTZ	6/23/84	.7
	47	NICHOLAS	3/3/84	2.6
	48	VANDERGRIFT	9/18/84	.3
	49	R. G. BRADLEY	6/30/84	.7
SSN	707	PORTSMOUTH	10/28/83	.9
	708	MINN/ST PAUL	3/17/84	.7
	709	H. G. RICKOVER	9/8/84	.1
	716	SALT LAKE CITY	2/18/84	.8
	717	OLYMPIA	6/30/84	.2
				$24.5

QUESTION: Please provide a comparison of the actual and budgeted steaming days per quarter for the non-deployed fleet in FY 1983.

ANSWER: The budgeted OPTEMPO for non-deployed fleets in FY 1983 is 26.9 days per quarter and represents a reduction of 2.1 days per quarter over FY 1982. This decline was programmed to provide more homeport assignments for crews following long deployments. The unplanned tasking to support the Marines in Lebanon, however, necessitates increased emphasis on predeployment training evolutions and the additional un-

budgeted deployment expenditures are impacting funding planned for the non-deployed forces. The first quarter actual steaming equated to only 24.2 days per quarter or 4.5 days per quarter below prescribed levels.

QUESTION: Please describe the rationale for the $2.3 million charter of a ready reserve ship. (Ref. 1-2-21)

ANSWER: The Merchant Ship Naval Augmentation Program (MSNAP) provides the capability to employ merchant ships as Naval auxiliaries in time of contingency or war through the rapid installation of equipment that enhances their military utility.

Previous at sea tests conducted in March 81 proved the concept that a merchant ship, simply configured with two sliding padeyes could successfully resupply Navy replenishment ships while underway at sea.

Funding requested in FY 1984 will provide for Military Sealift Command operation and crew costs of a Ready Reserve Forces ship to further evaluate the utilization of Merchant ships in a full operational environment. The RRF ship selected will be outfitted with two sliding padeyes and be employed for approximately 60 days to resupply selected Mobile Logistic Force Ships (MLSF) in the Altantic Fleet/Mediterranean area.

QUESTION: Why is the charter cost increasing $1.6 million for tanker support of carrier battle groups? (Ref. 1-2-21)

ANSWER: The increased cost of tanker support reflects projected inflation and tanker-type variations between years. Estimates are provided by the Military Sealift Command who manage leased support to the Navy fleets.

QUESTION: FY 1984 appears to be the first year for budgeting commercial sea trial escorts. Provide further justification for this initiative. (Ref. 1-2-21)

ANSWER: The heavy operational commitment of the Navy fleets necessitates the employment of available non-deployed units in select training modes prepatory for deployment. Also, early retirement of combatants in FY 1983 reduced the flexibility of ship types previously used to escort submarines during post-overhaul/SRA seatrials. The chartered escorts will be required to provide submarine support until sufficient fleet units are available.

SHIP OVERHAULS

QUESTION: Provide justification for $68.9 million "Other pricing" adjustments. (Ref. 1-2-25).

ANSWER: The "other" pricing adjustment of $68.9 million reflects inflation of the FY 1983 program to FY 1984 except for annualization of direct pay, stock fund and industrial funds which are identified separately. The major categories contained in "other pricing" are:

	($Million)
Ship Maintenance by Contract	56.2
Intra Government Purchases	.1
Equipment Maintenance by Contract	.1
Engineering Contracts	3.1
Shipwork at Ship Repair facilities and Other non-industrial funded activities	9.4
Total	68.9

QUESTION: In view of the recent policy change to budget advance funding in the year of induction, why is $63 million budgeted for "increase in advance funding for subsequent year starts?"

ANSWER: The advance funding requirement consists of ship checks, design effort, advance preparation work, and fabrication for both public and private shipyard repair work and the AERP/PERA organizations and, in addition, long lead time material required for private starts and AERP/PERA.

The policy change effective for the first time in FY 1983 relates to long lead time material for public shipyards only based upon prior agreements with the HAC. It was also agreed that applying this policy to the private sector would not be executable. For example, an overhaul contract with Newport News Shipbuilding and Drydock Co. requires the contractor also be fully responsible for the total aspect of advance planning for the overhaul to ensure orderly completion of the contract. To dilute this responsibility between the contractor and Navy, particularly for the larger ships, would result in inevitable delays and potential claims. AERP/PERA organizations are responsible concurrently with the shipyards for ship checks, design work, submarine refurbishment and preparation of the work package for ships in the overhaul schedule.

The increase in FY 1984 for the public shipyards and related AERP/PERA requirements is due largely to the increased nuclear submarine (SSN) workload in FY 1985 and 1986; i.e., 5 SSNs overhaul in FY 1984, 11 SSNs in FY 1985, and 12 SSNs in FY 1986.

The increase for private shipyards and related AERP/PERA requirements is due primarily to the overhaul of USS EISENHOWER (CVN69) and a nuclear submarine (SSN) in FY 1986 at the Newport News Shipbuilding and Drydocking Co.

Question: The number of SRA actions have nearly doubled in the last two years. Does the Navy expect this trend to continue? (Ref. 1-2-29)

Answer: In FY 1985 and 1986, an increased number of SRA's will be scheduled as additional ships are added to the phased maintenance program and as the operating cycles are extended due to the Engineered Operating Cycle (EOC) Program. It is anticipated that the SRA's in the outyears will average approximately 120 SRA's annually.

QUESTION: An increase of $1.5 million is requested for fleet repairs during PSA primarily for USS New Jersey. Since this PSA period will be completed by the end of FY 1983, why are funds requested in FY 1984 for this purpose? (Ref. 1-2-26)

ANSWER: The PSA for USS NEW JERSEY is scheduled for FY 1984 (10/83-1/84) vice FY 1983. The requested $1.5 million in FY 1984

O&MN funds is to correct deficiencies and make fleet repairs identified since delivery.

TAVB SHIPS

QUESTION: Please provide unit cost and funding source by year for the proposed modifications for two TAVB ships. Further, will these modifications constitute a cardinal change in characteristics of these ready reserve ships? (Ref. 1-2-26)

ANSWER: Costs for the modifications for two proposed TAVB ships are indicated by major category. The FY-84 budget includes $10M in the O&MN appropriation account.

Conversion Costs:

Major Mods ($M)	Lead Ship	Follow ship
Accommodations & Support	$20.7	$20.6
Flight Deck	5.6	5.6
Shop Services (IMA)	4.0	4.0
Readiness	9.6	9.5
	$39.9	$39.7
Detail design	3.2	---
	$43.1	$39.7

The modifications will not constitute a cardinal change in characteristics of these ships. The program specifically includes only necessary modifications for on-scene repair to aircraft assemblies until the IMA is phased ashore at the earliest possible time. When the IMA is offloaded, the ships revert to a normal strategic sealift role for resupply.

FLEET MODERNIZATION PROGRAM

QUESTION: Please describe the $23 million modernization plans for carriers and cruisers. (Ref. 1-2-27)

ANSWER: While Aircraft Carrier (CV) and Nuclear Cruiser (CGN) modernization plans in both FY 83 and 84 contain two complex overhauls (COH) for both CVs and CGNs, the FY 84's COH's are larger in scope and magnitude. The FY 84 modernization in USS RANGER (CV 61) is increased due to the fact that her overhaul/modernization cycle is 20 months overdue. Modernization plans include: a new radar, a fire control system for her close in weapons system; and a large expansion in her magazine capacity, and required environmental protection improvements. Modernization in FY 84 to USS CORAL SEA (CV 43) is also increased for this 38 year old ship, now that she will remain an active fleet carrier. Her modernization will include: alterations required for her to operate the new F/A-18 aircraft, two new radars, a new aircraft traffic system and a large increase in her air conditioning. In cruisers, FY 84 modernization increases are planned for USS VIRGINIA (CGN 38) to include: TOMAHAWK missiles and magazine, Standard missile (SM-2), and Close In Weapons System (CIWS). Additionally, USS BAINBRIDGE (CGN-25) is to receive CIWS.

SHIP OVERHAUL

QUESTION: In prior years, the Navy has submitted its planned overhaul program including ship, scheduled availability

and cost as part of the justification material. Please provide this information for the record for FY 1984 program.

ANSWER: The regular overhaul schedules for FY 1982, FY 1983 and FY 1984 follow :

Department of the Navy
Operation and Maintenance, Navy
Ship Overhaul Program
FY 1984 President's Budget

Strategic Forces

FY 1982 Overhaul Program

Hull No.	Name	Date Last Overhaul Completed	Current Overhaul Dates	Cost ($Millions)
SSBN 654	G. C. MARSHALL	08/73	11/81-09/83	87.9
SSBN 655	HENRY L. STIMSON	09/73	05/82-04/84	96.4
AS 32	HOLLAND	10/75	03/82-01/83	22.3
Total Overhauls	3 Ships			206.6
Advance Funding -	Public Shipyards			12.2
	Private Shipyards			24.0
	AERP/PERA*			12.6
Change Orders				27.2
Total Program				282.6

FY 1983 Overhaul Program

SSBN 656	G. W. CARVER	09/73	11/82-10/84	99.7
SSBN 657	FRANCIS SCOTT KEY	11/73	02/83-01/85	105.2
SSBN 658	MARIANO G. VALLEJO	06/74	01/83-12/84	117.7
Total Overhauls	3 Ships			322.6
Advance Funding -	Public Shipyards			8.6
	Private Shipyards			17.7
	AERP/PERA*			10.3
Change Orders				4.3
Total Program				363.5

FY 1984 Overhaul Program

SSBN 628	DANIEL BOONE	06/79	02/84-01/86	116.1
SSBN 631	ULYSSES S. GRANT	01/79	02/84-03/86	132.9
SSBN 659	WILL ROGERS	08/74	10/83-09/85	114.0
AS 34	CANOPUS	08/76	01/84-01/85	33.0
Total Overhauls	4 Ships			396.0
Advance Funding -	Public Shipyards			21.2
	Private Shipyards			46.1
	AERP/PERA*			15.9
Change Orders				0
Total Program				479.2

*Advanced Equipment Repair Program/Planning, Engineering Repair and Alteration represents preoverhaul effort/repairs accomplished outside the shipyard facilities and directly funded by the customer.

General Purpose Forces

Regular Overhaul Schedule (Repair Costs)
FY 1982 Column of the FY 1984 President's Budget

Hull No.	Name	Date Last Overhaul Completed	Current Overhaul Dates	Cost ($Millions
CV 63	KITTY HAWK	04/77	01/82-01/83	115.7
SS 576	DARTER	05/77	08/82-08/83	14.3
SS 580	BARBEL	11/76	09/82-09/83	35.0
SS 581	BLUEBACK	12/76	09/82-09/83	30.0
SSN 591	SHARK	07/77	10/81-04/83	77.4
SSN 604	HADDO	12/75	05/82-01/84	85.0
SSN 664	SEA DEVIL	06/75	10/81-06/83	66.6
SSN 672	PINTADO	08/76	06/82-10/83	68.9
SSN 675	BLUEFISH	06/76	06/82-10/83	64.0
SSN 676	BILLFISH	12/75	05/82-11/83	69.6
SSN 687	RUSSEL	05/76	01/82-07/83	58.0
CG 20	TURNER	06/78	01/82-12/82	24.0
CG 23	HALSEY	09/78	05/82-05/83	28.1
CG 32	STANDLEY	11/78	08/82-09/83	25.1
CGN 36	CALIFORNIA	04/75	01/82-07/83	89.6
DDG 5	RICKETTS	10/78	01/81-12/82	24.5
DDG 7	WILSON	07/78	05/82-05/83	30.9
DDG 11	SELLERS	07/79	08/82-07/83	25.1
DDG 15	BERKLEY	06/78	03/82-03/83	25.4
DDG 18	SEMMES	10/78	04/82-05/83	23.2
DDG 38	LUCE	11/77	03/82-03/83	22.0
DDG 40	COONTZ	05/78	07/82-07/83	25.7
DDG 41	KING	11/78	04/82-05/83	24.9
DD 969	PETERSON	12/77	07/82-04/83	13.9
DD 970	CARON	03/78	05/82-02/83	16.3
DD 971	RAY	04/78 (PSA)	02/82-10/82	21.0
DD 972	OLDENDORF	08/78 (PSA)	09/82-06/83	21.9
DD 975	O'BRIEN	06/78 (PSA)	06/82-02/83	21.8
FFG 4	TALBOT	04/78	08/82-08/83	18.8
FF 1040	GARCIA	10/78	11/81-10/82	12.1
FF 1061	PATTERSON	08/77	09/82-07/83	11.2
FF 1073	PEARY	12/77	09/82-06/83	23.4
FF 1074	HOLT	08/77	05/82-01/83	16.6
FF 1080	PAUL	11/77	05/82-01/83	13.6
FF 1087	KIRK	11/77	02/82-11/82	12.5
LHA 2	SAIPAN	02/79	08/82-07/83	40.0
LKA 116	ST. LOUIS	08/78	11/81-09/82	14.6
LPD 8	DUBUQUE	06/78	08/82-05/83	19.9
LPD 10	JUNEAU	11/78	11/81-09/82	19.3
LPD 15	PONCE	10/78	06/82-03/83	13.9
LPH 3	OKINAWA	03/78	05/82-03/83	24.1
LSD 33	ALAMO	01/79	04/82-02/83	22.1
LSD 36	ANCHORAGE	01/79	03/82-11/82	19.6
LST 1193	FAIRFAX CTY	02/78	10/81-06/82	8.1
LST 1196	HARLAN CTY	06/78	01/82-10/82	10.1
LST 1197	BARNSTABLE CTY	06/78	08/82-04/83	9.2
AE 22	MAUNA KEA	07/78	02/82-11/82	16.4
AE 23	NITRO	01/78	11/81-09/82	23.1
AE 32	FLINT	11/77	08/82-06/83	18.4
AFS 1	MARS	11/77	07/82-11/82	10.9

General Purposes Con't

AO 98	CALOOSAHATCHEE	05/79	09/82-05/83	22.1
AOE 2	CAMDEN	10/77	10/81-11/82	45.5
AOE 4	DETROIT	07/77	01/82-01/83	39.2
AOR 5	WABASH	06/78	05/82-02/83	23.0
AOR 7	ROANOKE	11/77 (PSA)	09/82-06/83	28.4
AR 5	VULCAN	11/76	01/82-02/83	11.1
AR 8	JASON	03/78	04/82-02/83	25.4
ARS 40	HOIST	10/78	09/82-02/83	2.7
ARS 43	RECOVERY	04/78	01/82-06/82	3.3
ATS 3	BRUNSWICH	06/78	09/82-06/83	12.0

Ship Overhauls	60 ships	$1,738.5
Advance Funding - Public Shipyards		48.4
Private Shipyards		25.4
AERP/PERA*		6.9
Change Orders		24.7
FY 1982 Column of FY 1984 President's Budget		$1,873.9

Regular Overhaul Schedule (Repair Costs)
FY 1983 Column of the FY 1984 President's Budget

Hull No.	Name	Date Last Overhaul Completed	Current Overhaul Dates	Cost ($Millions)
CV 64	CONSTELLATION	04/76	12/82-02/84	119.7
CVN 68	NIMITZ	12/75	06/83-09/84	99.6
SS 574	GRAYBACK	03/78	08/83-08/84	20.6
SS 582	BONEFISH	06/77	02/83-03/84	30.2
SSN 594	PERMIT	05/79	01/83-10/84	102.9
SSN 605	JACK	08/77	10/82-10/84	101.2
SSN 606	TINOSA	12/77	06/83-02/85	83.3
SSN 609	S. HOUSTON	03/75	09/83/09/85	71.1
SSN 611	JOHN MARSHALL	05/76	09/83-04/85	65.5
SSN 613	FLASHER	12/76	05/83-12/84	98.9
SSN 661	LAPON	09/77	06/83-11/84	63.8
SSN 678	ARCHERFISH	05/77	03/83-09/84	70.8
SSN 683	PARCHE	08/74	11/82-07/83	29.7 1/
CG 21	GRIDLEY	02/79	10/82-10/83	28.7
CG 24	REEVES	12/78	11/82-02/84	25.0
CG 27	DANIELS	04/77	02/83-01/84	25.0
CG 28	WAINWRIGHT	04/79	02/83-01/84	28.4
CG 33	FOX	09/79	03/83-03/84	28.4
CGN 35	TRUXTON	07/75	10/82-04/84	112.3
CGN 37	SOUTH CAROLINA	02/76	03/83-07/84	108.8
DDG 2	ADAMS	01/80	02/83-02/84	27.8
DDG 6	BARNEY	11/79	03/83-01/84	29.4
DDG 13	HOEL	06/80	07/83-06/84	27.3
DDG 16	J. STRAUSS	07/79	12/82-10/83	32.1
DDG 20	GOLDSBOROUGH	10/79	04/83-07/84	36.8
DD 973	JOHN YOUNG	11/78 (PSA)	01/83-10/83	17.0
DD 974	COMTE DE GRASSE	02/79	09/83-08/84	15.5
DD 977	BRISCOE	12/78	10/82-07/83	11.4

1/ Reduced scope overhaul

General Forces Con't

DD 978	STUMP	02/79	07/83-04/84	13.9
DD 981	J. HANCOCK	12/79	01/83-10/83	11.2
FFG 2	RAMSEY	04/78	09/83-08/84	21.3
FF 1047	VOGE	10/79	10/82-10/83	16.5
FF 1049	KOELSCH	06/79	10/82-09/83	16.0
FF 1055	HEPBURN	12/78	06/83-02/84	24.1
FF 1057	RATHBURNE	07/78	07/83-03/84	19.1
FF 1070	DOWNES	11/77	01/83-10/83	24.3
FF 1076	FANNING	06/78	08/83-04/84	24.8
FF 1082	E. MONTGOMERY	04/78	01/83-09/83	17.3
FF 1084	McCANDLESS	07/78	03/83-11/83	17.3
FF 1086	BREWTON	05/78	12/82-09/83	19.1
FF 1090	AINSWORTH	02/79	08/83-04/84	18.7
FF 1093	CAPODANNO	12/78	08/83-04/84	17.9
AS 11	FULTON	10/76	04/83-02/84	26.2
MSO 490	LEADER	03/80	10/82-03/83	2.3
LKA 115	MOBILE	03/79	10/82-05/83	13.6
LPD 5	OGDEN	12/79	06/83-02/84	24.9
LPD 13	NASHVILLE	08/79	09/83-05/84	20.8
LSD 34	HERMITAGE	12/78	01/83-11/83	25.4
LST 1179	NEWPORT	08/79	09/83-04/84	11.9
LST 1186	CAYUGA	03/80	09/83-05/84	17.3
LST 1187	TUSCALOOSA	12/78	04/83-12/83	15.9
AE 33	SHASTA	02/79	09/83-07/84	21.5
AE 35	KISKA	04/78	01/83-12/83	20.6
AFS 3	NIAGARA FALLS	12/79	02/83-06/83	12.7
AOR 6	KALAMAZOO	07/79	09/83-07/84	23.7
AR 6	AJAX	07/79	07/83-02/84	26.4
ARS 42	RECLAIMER	02/80	06/83-01/84	6.7
ASR 15	SUNBIRD	08/79	01/83-07/83	8.1

Ship Overhauls	58 ships	$2,050.7
Advance Funding - Public Shipyards		34.3
Private Shipyards		8.7
AERP/PERA*		42.6
Change Orders		49.5
FY 1983 Column of the FY 1984 President's Budget		$2,185.8

Regular Overhaul Schedule (Repair Costs)
FY 1984 Column of the FY 1984 President's Budget

Hull No.	Name	Date Last Overhaul Completed	Current Overhaul Dates	Cost ($Millions)
CV 43	CORAL SEA	02/79	10/83-10/84	118.9
CV 61	RANGER	03/78	04/84-06/85	143.7
SSN 612	GUARDFISH	07/77	10/83-05/85	99.2
SSN 653	RAY	06/79	11/83-07/85	85.5
SSN 665	GUITARRO	07/77	01/84-06/85	72.3
SSN 688	LOS ANGELES	02/78 (PSA)	11/83-02/85	84.1
SSN 690	PHILADELPHIA	09/83 (PSA)	06/84-12/85	85.5
CGN 25	BAINBRIDGE	03/77	12/83-06/85	131.1
CGN 38	VIRGINIA	09/77 (PSA)	04/84-09/85	132.8

General Purposes Con't

DDG 9	TOWERS	11/79		11/83-11/84	27.0
DDG 22	BENJAMIN STODDERT	03/81		04/84-08/85	37.2
DDG 37	FARRAGUT	10/78		10/83-10/84	27.1
DDG 43	DAHLGREN	06/79		02/84-12/84	27.1
DD 976	MERRILL	09/78		01/84-11/84	19.8
DD 979	CONOLLY	04/79	(PSA)	02/84-01/85	15.5
DD 982	NICHOLSON	12/79	(PSA)	05/84-02/85	15.9
DD 983	JOHN RODGERS	04/80	(PSA)	06/84-05/85	16.0
DD 987	O'BANNON	07/80	(PSA)	08/84-06/85	16.3
FFG 5	RICHARD L. PAGE	08/80		08/84-08/85	22.5
FF 1048	SAMPLE	03/79		04/84-02/85	21.6
FF 1058	MEYERKORD	02/79		03/84-11/84	19.6
FF 1062	WHIPPLE	11/79		07/84-03/85	21.1
FF 1066	MARVIN SHIELDS	06/79		07/84-03/85	19.5
FF 1069	BAGLEY	01/79		03/84-11/84	26.8
FF 1077	OUELLET	08/79		08/84-05/84	21.6
FF 1083	COOK	01/79		01/84-09/84	26.6
FF 1085	DONALD B. BEARY	06/78		11/83-07/84	17.9
FF 1088	BARBEY	12/78		01/84-09/84	19.3
FF 1089	JESSE L. BROWN	10/78		01/84-09/84	17.7
FF 1092	THOMAS C. HART	07/79		08/84-04/85	18.6
FF 1094	PHARRIS	06/79		03/84-11/84	18.4
AGF 11	CORONADO	11/79		01/84-02/85	22.8
LCC 20	MT. WHITNEY	12/79		07/84-03/85	20.9
LPH 7	GUADALCANAL	11/79		01/84-09/84	32.5
LPH 9	GUAM	09/80		07/84-03/85	34.0
LPD 14	TRENTON	03/80		06/84-02/85	21.8
LKA 117	EL PASO	11/79		07/84-12/84	18.8
LST 1180	MANITOWOC	04/80		06/84-12/84	12.9
LST 1182	FRESNO	02/80		01/84-08/84	16.1
LST 1183	PEORIA	03/80		07/84-03/85	16.4
LST 1184	FREDERICK	09/79		02/84-10/84	16.2
MSO 448	ILLUSIVE	02/81		01/84-05/84	2.9
AE 25	HALEAKALA	03/79		08/84-06/85	21.9
AE 34	MT. BAKER	05/78		02/84-12/84	23.8
AS 37	DIXON	11/78		01/84-12/84	34.4

Ship Overhauls	45 ships	$1,721.6
Advance Funding - Public		60.3
Private		35.3
AERP/PERA*		60.8
FY 1984 President's Budget		$1,878.0

*Advanced Equipment Repair Program/Planning, Engineering Repair and Alteration represents preoverhaul effort/repairs accomplished outside the shipyard facilities and directly funded by the customer.

FLEET MODERNIZATION PROGRAM

QUESTION: Why is the outfitting requirement increasing so drastically from $29.4 million to $83.6 million?

ANSWER: The line "Improved Readiness" reflects new programs being supported under the outfitting account and is for repair

parts to support new system acquisitions or to provide new equipage allowances. It is to "buy-out" items previously procured under the Navy Stock Fund. Specifically, the programs accounting for the increase are as follows:

1. Chemical, Bacteriological and Radiation (CBR)

$12.3 million - This program has been developed because of chemical threats recently recognized. The items funded by the program are either new requirements or enhancements to existing allowance items related to shipboard CBR defense. The program provides protection against CBR threats to personnel and shipboard stations. Items funded include: Personnel decontamination and detection kits, stand-off directional detectors, localized point detectors, improved MK V Gas Mask/canister, filter canister, atropine for individual decontamination surface contamination monitors, improved boots, gloves, modern overgarments, etc.

2. NATO Seasparrow Surface Missile System (NSSMS) -

$7.2 million - The NATO Seasparrow Surface Missile System (NSSMS) consists of fire control and launching systems for the RIM 7 H/M missile which provides ship point defense. The outfitting requirement is the result of material being recently shifted to Naval Stock Fund (NSF) requiring that the material be purchased by this account. This is a one year program.

3. Reprovisioning - $8.8 million

Major equipment failures are periodically analyzed to determine whether the existing spare parts allowances are adequate to meet maintenance requirements. When maintenance philosophy is changed or repair part demand proves significantly greater than anticipated, the spare part allowances are increased - funds are then required to increase the stock of spare parts up to the new allowance. There has been a concerted effort to ensure that spare parts allowances are adequate -- hence, the growth.

4. AN/SLQ-32 - $5.2 million

Navy support date for this equipment was advanced by the Chief of Naval Material, from 1985 to 1 October 1983. This supports outfittings of new installations occurring during overhaul and new allowance requirements not previously identified in order to backfit 150 existing installations.

5. Landing Gear (Infantry) - $1.5 million

This program is comprised of individual combat equipment, including such items as helmets, body armor, gas masks, canteens, field packs, sleeping bags, tents and related items required for combat operations ashore. The program provides for initial issue of this material. Individual combat equipment items are required by ships to meet the needs of the ships' self defense force and by Naval ground forces including mobile construction battalions, Seal teams, underwater demolition teams, and special boat squadrons. Equipment items involved are the same as those used by Army and Marine Corps personnel to sustain themselves when living ashore during combat operations and training exercises. This requirement is an enhancement of any existing on board allowance.

6. AN/WLQ-4 - $5.2 million

The AN/WLQ-4 (Sea Nymph) is a passive electronic support component of the command support sensor subsystem. The system reports and records signals of interest and is the functional successor to the AN-WLR 6. This system is being installed on SSN-637 class submarines and consists of 228 separate units, 18

equipment racks, AN/UYK-20 computer, 37 microprocessors and 6 operator positions. Allowance support costs for four SSNs make up the FY 84 requirements.

7. Night Vision Devices - $3.0 million

These devices offer improved detection over existing devices when bright light sources are in the field of view. A basically level funded effort was initiated to fund the $14.2 million total requirements over a five year period (FY 84 is first year).

8. 2" and Under Valves - $3.6 million

The 2" and under valve standardization program is a program to achieve configuration control and standardization of some 53,000 existing Allowance Parts Lists (APLs) for valves in the fleet. The target is to reduce the number of these APLs to no more than 2,500, and prevent the proliferation of non-standard valves. The potential savings in this program is in excess of 1 billion dollars over the life of the ships in which they are installed. These valves will be for replacement during overhaul.

9. Deep Submergence - $3.7 million

Includes allowance support for new installations of equipment on 2 Deep Submergence Reserve Vehicles (DSRV's), 2 Deep Submergence Vehicles (DSV's) and other diving vehicles. The DSRVs are used to rescue personnel from disabled submarines on ocean bottom and conduct search operations. The DSVs are used to perform manned underwater inspection and recovery missions and provide a platform for development of improved sonar/sensor systems.

10. Classic Wizard - $1.2 million

The highly classified, high priority technical ocean surveillance system receives allowance support thru normal Naval supply system channels. Supply support is managed by the Naval Supply Center for these geographically widespread installations. Operating management is provided by the Naval Security Group. Most equipments supported are either communications or computers.

Question: The largest single increase in the fleet modernization program appears in the cruiser/destroyer mine warfare mission and program support lines. What major alterations are planned to justify the increase of $40 million and when was the alteration material originally ordered. (1-2-30)

Answer: The cruiser/destroyer mine warfare "mission" line increased $19.8 million from FY 83 to FY 84 ($120.6 - $140.4 million). This increase was incurred by additional SHIPALTs for TOMAHAWK (ABL) (and TOMAHAWK magazine) and SM-2 in CGN-38 as well as CIWS in CGN-25 and CGN-38. "Program Support" increased $9.1 million in this period ($22.2 - $31.3 million) to accommodate the TOMAHAWK/SM-2 SHIPALTs and the NAVSEA SHIPALT Improvement Program changes. The total combined increase is $28.9 million vice the $40 million stated in the question. The SHIPALT material was originally ordered in FY 82 and FY 83 for the FY 84 program, under the procurement account.

QUESTION: Although there has been a modest increase in productive manyears for intermediate maintenance activities in the last two years, total material costs have increased at a rate of $20 million a year. Is there any relationship between productive manyears and material requirements? If not, what factors account for the material inventory cost increases? (Ref. 1-2-31).

Answer: The material requirements are a direct result of the productive man year requirements. The increase of approximately $20 million dollars a year for the last two years is mainly driven by the price growth for Service Managed Supplies and Material (Navy). The FY 1982 to FY 1983 indice is 10.9 percent and the FY 1983 to FY 1984 indice is 15.5 percent.

QUESTION: Similarly, there is an increase in only 30 man years for contract support, but at a cost of $5.3 million. Since there is a direct association between contract support man years and costs, why is this marginal increase in man years commanding such a large increase? (1-2-31).

ANSWER: The contract support cost shown for each year are the total costs including both pricing and program. Therefore, the increase of $5.3 million reflects both the increase of 30 man years and inflation from FY 1983 to FY 1984.

COMBAT SUPPORT FORCES

QUESTION: Explain the change in the deployment schedule of the airborne mine counter measure program which has forced the increase of $1.5 million. (Ref. 1-2-36)

ANSWER: The FY 1984 schedule change is for Airborne Mine Countermeasure exercises in the Caribbean Sea area and with the Canadian armed forces in the area of Nova Scotia. Both of these exercises are not being conducted in FY 1983, the increase funding is on a zero base.

QUESTION: Although the schedule of increases and decreases demonstrates the increase of $15 million for combat support forces, this is offset by a decrease of approximately $1 million. However, the performance criteria and evaluation clearly indicates a decline in the number of battalion months deployed, construction projects, and demolition team deployments. All other activities remain essentially constant, but with an increase of nearly 300 military personnel. Are there no savings to be achieved from this apparent decline of workload? (Ref. 1-2-38)

ANSWER: The decrease of 1.5 battalion months deployed does not appreciably affect the funding requirements because the major driving force behind deployment costs is the actual number of Military Airlift Command flights required to deploy the units and the deployments being commenced in a given fiscal year. Deployments commenced increase by one in FY 1984 while MAC flights are the same as FY 1983, thus there is not a decrease in the funding because of the change in months deployed.

The number of construction projects in FY 1984 decrease from the FY 1983 level but what affects the cost of the program is the nature of the project, and its affect on machinery, not the number of projects. Construction projects can range from repairing a roof, which requires use of very few tools, to repair of a seawall which requires extensive use of machinery. The more often machinery is used, and the conditions under which it is used, dictates the extent to which it must be maintained and maitenance drives the cost of the program.

The increase of about 300 military personnel in this

program isprimarily associated with the creation of a new SEAL Team in the special combat support forces activity group.

FLEET OPERATIONS SUPPORT

QUESTION: Although the justification demonstrates a $12.1 million increase in per diem days for the T-AGOS ships, the performance criteria and evaluation demonstrates a decline of over 100,000 per diem days in FY 1984. What are the savings attendant to this decline in per diem days? (1-2-47)

ANSWER: The Fleet Operations Support activity group includes an increase of $12.1 million for T-AGOS ships which is not related to the decrease in Temporary Additional Duty (TAD) per diem days. The decline of over 100,000 per diem days in FY 1984 is related to changes in Travel requirements for operational training.and administrative travel for ship to shore assignments, hospitalization, or other emergencies. The decline in per diem days resulted in a reduction of approximately $1.7 million which is shown as item 4, B(2) on page 1-2-44.

Because of an oversight, the increase of $12.1 million dollars for T-AGOS charter costs is not reflected in the performance criteria for this activity group. The performance criteria should state that there will be 222 per diem days at $12,900 per day and cost reimbursables related to the activation of the ships of $9,274,000 for a total of $12,138,000.

FLEET EXERCISE LOGISTIC SUPPORT

QUESTION: The justification demonstrates a new requirement of $8.4 million for fleet exercise logistic support. Where were these costs budgeted in prior years? (1-2-49)

ANSWER: Prior to FY 1980, what are now known as fleet exercises were included in the Joint Chief of Staff exercises program and were funded in that activity group.

In FY 1980, a change in JCS exercises policy stated that only exercises with the participation of more than one commander-in-chief would be eligible for funding from the JCS exercises activity group. The result of this change was that many exercises were cancelled or curtailed. The funding increase requested in FY 1984 is intended to rebuild this program by expanding the number of, and participation in, fleet exercises. The growth of $6.9 million in the FY 1983 program is not a transfer from any existing programs, it is an expansion of previously funded efforts.

FLEET OPERATIONAL SUPPORT

QUESTION: Furthermore, performance criteria demonstrates a $10 million decrease for warfare tactics documentation. why isn't this reflected in the schedule of increases and decreases? (1-2-50)

ANSWER: The performance criteria on page 1-2-50 contains a typographical error. The total for FY 1983 Warfare Tactics

Documentation is $8,099,000 not $18,099,000. This is confirmed by looking at the subactivity breakout on page 1-2-49 which shows the FY 198[illegible] current estimate to be $8,099,000 for Warfare Tactics Documentation.

ADVERSARY AIRCRAFT

Question: At one point there was some discussion of leasing adversary aircraft. What is the status of this proposal?

Answer: There is no current plan to lease the aircraft. The Navy evaluated many possible acquisition strategies in order to determine the approach that best meets the requirement. After careful consideration of various alternatives in meeting the adversary program need, the Navy has decided to procure, not lease, the required aircraft over the three-year period.

FLYING HOURS

QUESTION: Is any portion of the fleet training budget available for this adversary aircraft lease?

ANSWER: There are no O&M funds budgeted for the lease of adversary aircraft.

SIMULATOR HOURS

QUESTION: With the increase of 8,875 students receiving FA-18 training, could a portion of this $10.8 million requirement be accomplished by greater use of simulators? Despite the increase in student loads, the simulator hours programmed do not even match the 189,000 hours in FY 1982.

ANSWER: Simulators can only contribute, through complementing and enhancing flight hours, approximately two percent PMR. Aircrews obtain credit for certain training evolutions that can be performed in simulators. Once qualified in these areas, increased simulator use through repetitive accomplishment of these training evolutions will not contribute to training readiness or PMR.

Student loads are programmed to increase, but delays in acquisition of necessary FA-18 simulators have resulted in no display of FA-18 simulator data in the Flight Hours Program Report (OP-20).

The 189,000 hours programmed for FY-82 were an overestimation of Navy utilization. Simulators were actually utilized approximately 140,000 hours in FY-82.

FLYING HOURS

QUESTION: The FY 1984 budget for air staffs is twice the current estimate. What accounts for the $2.2 million increase? (1-2-52)

ANSWER: A break-out of the $2.2 million is as follows:

Electronic Warfare/ASW Training Training utilizing advanced combat tactics and weapons systems trainers to enhance aircrew response time in combat scenarios.	795
Deepwater Survival Training (DWEST) associated with Search and Rescue Aircrew Training.	400
Training aids and supplies for use Tropical Survival, Evasion, Resistance and Escape (SERE) training.	375
New/advanced equipment and Technical support for the Naval Intelligence Processing School (NIPS).	300
Other training related increases.	350

NAVY RESEARCH AND DEVELOPMENT

JVX

QUESTION: The principal driver for the JVX program is the Marine Corps requirement to meet a 1991 IOC for its medium lift force capabilities. What would the Marines propose to do if the JVX program was deferred for two years?

ANSWER: It is the Department of the Navy's position that the JVX program should proceed as presently scheduled and structured. The planned 23-month preliminary design phase is required to permit a definitive assessment of JVX cost and effectiveness to support the fiscal year 1985 decision for full scale development. While there appears to be no technical basis for a delay in this program, a two-year deferral due to fiscal considerations would necessitate a major reassessment of the Department of the Navy's plan to ensure that the Marine Corps assault vertical lift capability, specifically its highly flexible medium lift inventory, does not further deteriorate after fiscal year 1990. It is the Navy's conviction that, from the standpoint of economical conventional force modernization, prompt and determined action in support of JVX development for the Marine Corps is the most prudent course of action.

QUESTION: Only one contracting team has responded to the JVX request for proposal. How much confidence can we have in the JVX developmental costs when only one contracting team has responded to the RFP?

ANSWER: The Defense Acquisition Regulations prohibit disclosure of the numbers or names of any bidders for a contract during the source selection process; however, the question can be answered in a hypothetical sense.

The current program cost estimates were developed last year by the Army's development agency. They were verified through two independent cost analysis reviews last summer, one by a group

outside the government and another by the office of the Secretary of Defense. These estimates are parametrically derived and we are confident that they are as good as they can be at this early stage in the program.

Under the program strategy that was approved by the Deputy Secretary of Defense last fall, only the preliminary design phase of the project, the first two years, was to have been conducted with two teams of contractors working competitively. The plan was to narrow down to one contractor at the start of full systems development. If there has been only one respondent to the RFP, the effect would be that the project has narrowed down to one manufacturer two years earlier than planned.

Regardless of the fact that there may have been only one respondent, he could not have been aware of that until after his proposal was submitted. Therefore, the bidding process was conducted in the true spirit of competition.

One of the purposes of the next 23 months of preliminary design is to perform a complete reassessment of program costs, make those program and capability adjustments which are necessary to achieve cost reductions and produce a much more refined estimate for use at Milestone II, the major Full Systems Development Decision point scheduled for mid-1985. Our decision to take JVX into full systems development, or not, will be based upon the cost estimates presented at that time.

QUESTION: At a briefing given to Subcommittee staff on February 9, Col. Creech alluded to the fact that the Navy might be interested in a 30,000 pound, rather than a 40,000 pound, JVX aircraft. Has the ultimate weight of the JVX been determined?

ANSWER: We will not have a final determination on aircraft weights until the completion of the preliminary design phase about two years from now. That phase's purpose, among other things, is to refine our weight estimates and determine where we can make intelligent trade-offs to reduce aircraft weight and cost. All the weight estimates to this point have been made by parametric analysis and we will have a much more accurate picture by Milestone II.

We should be careful in how we address aircraft weights and what kind of weights we are referring to in order not to confuse the issue. The Navy has asked that the landing weight of its JVX version not exceed 30,000 pounds. This is driven by a deck strength limitation on our smaller ships. The normal take-off and maximum gross weights of that aircraft would be considerably higher. For instance, the maximum gross weight of our CH-53E is 72,000 pounds, but its normal landing weight is somewhere around 35,000 pounds. A JVX with a normal mission weight of 40,000 pounds would probably have a landing weight of less than 30,000 pounds and meet our requirements.

QUESTION: The Marines now initiate their medium lift ship-to-shore operations from 50 miles. The JVX aircraft would give them the capability to go even farther offshore, perhaps even out to 200 miles. Why do the Marines need this additional standoff capability?

ANSWER: The Marines' stand-off requirement is 50 nautical miles, with 110 nautical miles desired. The war in the Falklands vividly demonstrated the need for an over-the-horizon assault capability. The joint nature of the JVX program, i.e., the Air

Force 700-nautical mile special operations requirement, provides the Navy/Marine Corps team with the potential to execute the amphibious assault from 200 nautical miles offshore.

QUESTION: In response to Subcommittee questions, the Army stated that the proposed weight, wing span, length, and width of the JVX aircraft were "anticipated" characteristics. Have these technical characteristics been firmed up?

ANSWER: No. The purpose of the preliminary design phase of the JVX project is to firm up these characteristics, study weight and cost alternatives, and evaluate designs in the wind tunnel and through simulation. The JVX's characteristics will be firmly established by Milestone II, the Full Systems Development decision point, which is scheduled for mid-1985.

QUESTION: The Army and Air Force are looking at using the modern technology engine with the JVX. What is the total cost of the modern technology engine program?

ANSWER: The latest estimate is $708.6 million, of which the Navy's share is $235 million. In December 1982, the Army was designated as Executive Service for the modern technology engine. Also, the Navy and Marine Corps plan to use the modern technology engine in all JVX aircraft after the second year of production.

QUESTION: If the Army were withdrawn from the JVX program, could the Air Force get by with using the T64 engine?

ANSWER: We cannot fully answer that question now, since we do not know the results of the preliminary design phase trade-off studies and analyses. The Air Force's long range special operations mission is the most stringent of the nine designated mission profiles. As the trade-off studies are completed, we will convene the Joint Services Operational Requirements (JSOR) Group to assess the preliminary design results. One of the questions the JSOR group will address is acceptability of engine alternatives, and a T-64 engine derivative is only one candidate. The T-64 is a fleet-proven engine with an existing support structure and has previously been qualified to operate both horizontally and vertically.

Cost estimates provided to the Subcommittee last September on the JVX program indicate that the total acquisition cost in constant FY 1983 dollars would be $20.3 billion. Those estimates indicated that in escalated, then-year dollars, the total cost of the program would be $45.7 billion.

QUESTION: Were these costs based upon a parametric analysis of a scale-up of the XV-15?

ANSWER: With the current inflation indices applied, total program cost is now estimated at approximately $41.8 billion in then-year dollars. The estimate was based on a parametric analysis of other aviation cost estimating relationships, but not on a direct scale-up of the XV-15. Since there has never been a production model tilt-rotor, the estimates were essentially based upon extrapolation from various fixed-wing and rotary-wing programs.

QUESTION: What has been the history of the military services with respect to cost estimating confidence for scaling up rotary-wing aircraft?

ANSWER: As far as known, there has never been a rotary-wing program such as this which depended upon scaling from a technology demonstrator to a production versions. However, we have reason to belive that our cost estimates, based upon extrapolation from various fixed-wing and rotary-wing programs are reasonably accurate.

QUESTION: What is the response of the JVX program office to the criticism that the 23-month preliminary design review period is simply too short a time to substantiate specific areas of the proposed design characteristics and capabilities of the JVX aircraft?

ANSWER: The JVX program office disagrees with that assessment. The period of contract performance, as currently structured, is 24 months. That period is based upon industry responses to draft requests for proposals. During the Joint Technical Assessment, industry was asked how long they thought it would take to accomplish the wind tunnel tasks. All of industry's responses were twenty-four months or less. The program acquisition strategy called for a 23-month effort, but that was extended to 24 months in the final request for proposals, and after consultation with NASA and with industry. We feel that the period of performance is adequate for the scope of work requested. However, there is one potential drawback to the plan; it hinges on availability of the 40' x 80' wind tunnel at the NASA Ames facility. This wind tunnel is critical to the large scale model validation of design during this phase. The tunnel is presently inoperable as the result of a turbine blade failure last year, but is scheduled to be in ready status by September 1984 which fits with the Navy schedule.

QUESTION: The JVX program office had hoped that this preliminary design period would increase the likelihood of meaningful competition in the R&D program. Now that only one contracting team has responded to the JVX RFP, how does the JVX program office intend to exact firm cost discipline on the remaining contractor?

ANSWER: In accordance with DAR 3-507.2(a), no information regarding the number or identity of offerors may be made available; however, the preliminary design phase of the JVX program will be contracted for on a cost-plus-incentive fee basis which provides an incentive for the contractor to control costs. The fee incentives are structured on three levels: the first is to provide incentive to the contractor to keep costs below the agreed-upon contractual estimate by increasing his fee by 25% of every dollar under target costs, up to a maximum fee of 15% of incurred costs; secondly, to provide 75% of every dollar over target costs, thereby effectively reducing his fee by 25% for every dollar for target costs overrun; thirdly, require him to complete performance under the contract while absorbing 100% of additional costs once his fee has been effectively reduced to zero. The incentive provisions of the contract plus establishment of a maximum reimbursement by the Government will motivate the contractor. The Navy is confident that development cost can be controlled through contract type and structure and through vigorous scrutiny of contractor performance.

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QUESTION: Has any consideration been given to changing the type of contract such as moving away from cost plus incentive fee toward a firm fixed priced fee?

ANSWER: No consideration has been given to changing the type of contract; however, a ceiling will be included in the contract which defines the maximum reimbursement to be made by the Government. Any costs incurred beyond that point will be totally borne by the contractor.

TAV-8B TRAINER

Last year during the Appropriations conference, the Navy appeal on the Senate add-on for the TAV-8B Trainer stated that addition of the $22 million into R&D money was unnecessary, because the Navy would finance the TAV-8B by reducing the total quantity of TAV-8Bs to be procured. On this basis, the Senate receded on the R&D money, and agreed to language outlining our understanding of the Navy's intention to proceed in the above mentioned manner in the conference report.

QUESTION: Now we understand that the Navy reversed its decision, delayed the TAV-8B program until FY 1984, and is not considering an R&D reprogramming to get the program started this year. Why?

ANSWER: The TAV-8B program proposal is currently under review by the Secretary of the Navy.

QUESTION: Why did the Navy represent its position on the TAV-8B to the Senate in one way, only to turn around and let the Marines down just a few weeks later?

ANSWER: Further examination of the proposed TAV-8B Acquisition Plan determined that, in lieu of decrementing aircraft procurement and reprogramming funds, other reprogramming candidates might be a better way to implement a fiscal year 1983 start of TAV-8B development. Headquarters Marine Corps has been instrumental in developing this preferred alternative.

DDG 51 R&D

QUESTION: The DDG 51 program contains R&D funding in a number of different lines. Please provide for the record a listing of all DDG 51 R&D funding.

ANSWER: See attached Chart:

DDG 51 R&D FUNDING ($M)

PE	PROJECT	TITLE	FY-83	FY-84	FY-85	FY-86	FY-87	FY-88
63564N	S0405	Ship Development Preliminary Design	4.0					
64567N	S1803	Ship Contract Design and Design Engineering	12.4	16.2	10.8	10.5	9.5	9.5
63589N	S1317	DDG 51 Combat System						
		- Combat System Eng	23.9	34.0	52.0	40.0	38.0	33.0
		- SPY-1B/D AAWCS	23.6	13.0	10.0	7.5	3.0	2.7
		- Surface & Strike (TOMAHAWK)	1.0	3.0	3.0	2.0	2.0	2.0
		- Gun Weapon System	2.9	3.0	2.8	2.0	2.0	2.0
		- ASW Weapon System	6.0	8.0	17.0	14.0	14.0	12.0
		- C^3I	5.0	5.0	5.0	7.0	7.0	5.0
		- Site & Equipment	65.6	31.0	26.0	19.0	22.2	36.0
		- Combat System Support	10.3	14.0	14.0	14.0	14.0	14.0
		TOTAL	138.3	111.0	129.8	105.5	102.2	106.7
		Propulsion Developments						
63508N	S1683 S1649	LM-2500 Upgrade	9.0	8.3	7.1	1.7	0.0	0.0
64567N 63508N	S0857 S1649	Auxiliaries (SSGTG, Vapor Compressor)	2.5	1.0	1.0	0.0	0.0	0.0
64567N 63508N	S0857 S1649	Land-Based Engineering Facility	1.0	8.0	7.0	7.0	6.3	7.5

DDG 51 R&D

QUESTION: How much funding is in the contract design line for DDG 51 land-based test site design and development/testing of reverse reduction gear?

ANSWER: The Contract Design line for DDG 51 does not contain funding for Reverse Reduction Gear. In FY-1984, $1.8 million is included in the Ship Sub-System Development/Land-Based Test Site line for design, development/testing of Reverse Reduction Gear.

TOMAHAWK MISSILE R&D

QUESTION: The FY 1984 Tomahawk R&D program has increased to $135 million from the $26 million projected for the program last year. Much of this is due to a restructuring of the program. How much funding is in the FY 1984 Tomahawk R&D Budget for additional work on terminal guidance and the submunitions dispenser?

ANSWER: In FY 1984 $9.0 million is budgeted for research and development (R&D) of the Terminal Maneuver (Block II A) and $15.9 million is budgeted for R&D of the submunition dispenser (Block II B).

QUESTION: The Navy is also requesting funding of a new Tomahawk product improvement project. Why should we proceed with a Tomahawk product improvement program when the missile is still undergoing significant systems and subsystems testing?

ANSWER: The Navy has withdrawn it's request for funding of a Tomahawk product improvement program in order to focus efforts on getting the baseline weapon system to sea. As the system matures and greater operational experience is gained, there are several potential improvements that must be considered for block upgrades in a future product improvement program. These block upgrades will improve the performance, flexibility and survivability of the Tomahawk weapon system.

NAVY DEFENSE RESEARCH SCIENCES

QUESTION: The Navy is requesting $300.8 million for defense research sciences. Nearly $50 million is requested for new project starts in this line item. What are the top five priorities of the Navy for each of these new project starts?

ANSWER: The Navy Defense Research Sciences Program maintains a vigorous scientific effort in order to sustain U.S. naval technological superiority. This science base is thus a source of new concepts and technological options for the maintenance of naval power and national security. The program plans 16 new major project starts for FY 1984, which total about $18.7 million (vice the $50 million indicated in the question for the record). Since there is virtually no real growth contained in the requested appropriation, these new initiatives are being funded from termination and successful completion of other programs. A prioritized list of the new FY 1984 starts is provided below. Included is a brief description of the priority research objectives and response to Navy needs:

1. Ultra Low Loss Glass Fibers. This research examines the purification, characterization and associated drawing techniques for high transparency glass fibers. This research is required to develop fiber optic cable wave guides and sensors for surveillance applications of significant interest to the Navy.
2. Biomolecular Systems for Naval Applications. The objective of this research is to develop the technological base for applying recombinant DNA synthesis techniques to specifically tailor biological polymers for new or improved naval materials. Applications include corrosion control, electronics, protective coatings, sensors, films and lubricants.
3. Air Sea Interaction. The purpose of this program is to examine the detailed physics of the atmosphere and ocean in the marine boundary layer and ocean mixed layer. The goal is to develop improved models of the exchange of momentum, mass, and heat for both storm and nonstorm conditions. The variables in this environmental region have a strong impact on ASW as well as on radar propagation and deployment of guided weaponry.
4. Tactical Distributed Decision Making. This research will develop a theoretical model and measures of effectiveness for distributed decision making in a command and control context. It will provide the Navy with a basis for making informed evaluations and trade-offs regarding C^3 systems design variables and doctrine.
5. Bioluminescence and Optical Variability. This is a coordinated interdisciplinary program which will model ecological succession and upper ocean mixed layer evolution to provide predictions of optical properties and phenomens (i.e., transmissivity, absorption, scattering, and bioluminescence). Reliable prediction of these properties/phenomena would provide valuable insight into significant Navy problems in submarine defense, strategic laser communications, laser bathymetry, and diver or submersible operations.
6. Electro-optic Countermeasures Research. The objective of this research is to identify suitable color center laser materials and principles for optical countermeasures. This research is required to counter enemy missile seekers and has other potential uses in optically guided weapons and optical communications.
7. Ocean Surveillance Signal Processing. This program provides basic research in statistical and computational methods for the analysis of broadband and tonal signals in order to improve, for example, detectability of submarine operations. The results of this effort will improve Navy capabilities in reducing the impact of Soviet submarine quieting programs by developing integrated space-time signal processing technology.
8. Finescale Variability. The objectives of this research are to examine the dynamical and thermohaline sources of finescale variability in the upper ocean. An understanding of these phenomena will have a significant impact on developing predictive occurrence models and in discriminating signals from naturally occurring fluctuations. The results of this program could plausibly lead to improved ASW detection, tracking, classification, and localization techniques.
9. Low Reynolds Number Aerodynamics. This research seeks to identify three dimensional effects of laminar flow separation, natural fixed transition, and free stream disturbances on the aerodynamic performance and stability in the transitional

Reynolds number regime. It will provide the aerodynamic basis for assessing the feasibility of low speed flight for small, high endurance air vehicles.

10. Southern Ocean Studies. The objectives of this program are to investigate and understand the environmental features (fronts, eddies, current boundaries, crustal structure, bathymetry) of the South Atlantic and Indian Oceans. There is a paucity of information on basic circulation patterns in these oceans and their importance to strategic operations requires further examination. This research would be in direct support of the Navy requirements to protect sea lanes of communication, counter ASW threats, and conduct various warfare missions in a highly variable, bottom limited region.

11. Compact Ramjet Propulsion Systems. The purpose of this effort is to identify principles for controlling gas dynamic and chemical processes in order to minimize combustion instabilities in compact tactical missiles powered by integral rocket ramjets. This system is the most likely propulsion candidate to satisfy the Navy's need for supersonic, compact air-launched tactical missiles.

12. Millimeter Wave Technology. This research will determine new mechanisms to improve performance and reduce costs in the millimeter wave regime. The Navy has requirements for millimeter solid-state technology in a variety of future systems including point defense, secure communications (including earth-space and space-space), and electronic warfare receivers and jammers.

13. Welding of Naval Alloys. This program will characterize weld structure/property/process relationships and investigate new welding control and process techniques. Major thrusts include dissimilar metal welding and weld distortion and fracture analysis. Welding fabrication is a major concern regarding structural integrity and economics of ship and submarine construction.

14. Dynamics of Indian Ocean Circulation. The objective of this research is to understand the dynamics of the mesoscale and large scale circulation of the Indian Ocean in order to provide a basis for development of scientifically valid forecast models for the region. The results of this research would provide a predictive capability for the Indian Ocean environment which should enhance Naval effectiveness in ASW, ship routing, and search and rescue missions.

15. Numerical Meterology for Battle Group Support. This program will support development of numerical techniques for the analysis and prediction of atmospheric parameters in the immediate area of battle group operations. The modeling includes investigation, data assimilation, and determining finescale variability in environmental conditions within a few kilometers of the battle group and over short time spans. Tactical decision aids resulting from these investigations will improve efficiency in weapons system selection and performance, C^3 coordination, electronic warfare, and sensor operations.

16. High Precision Astrometry and Satellite Positions. This research is required to develop an interferometric system in the optical and infrared spectrum capable of precise stellar positioning. Improved navigational accuracy is required for strategic targeting and positioning.

HARM PRODUCT IMPROVEMENT

QUESTION: The Navy is requesting $11.8 million in FY 1984 for a HARM missile product improvement. This program was not projected as being necessary last year. What has changed in the past 12 months to make this program a high enough priority to be in the FY 1984 budget?

ANSWER: At the time the FY-83 budget was forwarded in January 1982, HARM was ten months away from completion of Operational Evaluation testing. It was too early in the program life cycle to identify product improvements and justify a product improvement budget. The FY-83 budget showed $2.0M in P.E. 64360N for HARM in 1984. Since that time HARM has completed testing, and a product improvement program emphasizing cost reduction and correction of minor deficiencies identified during testing has been developed. The $2.0M was transferred from P.E. 64360N into the P.E. 25601N product improvement line and increased by $9.8M to fund correction of OPEVAL deficiencies and cost reduction changes.

QUESTION: The HARM missile has been kept at a relatively low rate of production for the past two years. Why should we agree to initiation of a product improvement program for HARM when the Navy has decided to keep production at less than economical rates?

ANSWER: HARM has been a highly concurrent program. Operational Evaluation testing was completed in November 1982, eleven months after the second annual production contract was signed. Annual production rates through 1983 were kept low in part to minimize retrofit costs for correction of any serious deficiencies that might be uncovered in operational testing and in part to investigate means of reducing the unit cost of the missile. Operational testing has now been completed with no major deficiencies noted. A program has been developed to correct the deficiencies that were identified by operational testers and to pursue product improvements that hold promise of reducing unit costs. The currently funded production program builds production to near the maximum planned annual rate by 1986.

F-14

QUESTION: The Navy is requesting an increase of $28 million for the F-14 R&D line to fund F-14 radar and avionics improvements. These improvements were not identified as being necessary last year. Why are they being budgeted for in FY 1984?

ANSWER: Last year the Navy budgeted $17.5 million only for radar improvements to the F-14. At that time, the requirement for avionics improvements to the F-14 had not been defined and approved. With the $5.0 million provided by Congress in the fiscal year 1982 budget specifically for avionics improvements, the Navy has been able to complete definition of the avionics requirements and start efforts for laboratory demonstrations. The additional $28 million requested in fiscal year 1984 this year will lead to full scale development of the avionics improvement program.

AIR-LAUNCHED TOMAHAWK

For the past two years the Navy has been trying to withdraw from the Joint Navy/Air Force medium range air-to-surface missile program. The Navy version is called the Air- Launched Tomahawk.

The Navy even offered up the Air-Launched Tomahawk as a give-up in the Appropriations Conference appeal package last year.

QUESTION: Just how strong is the Navy commitment to this joint service program?

ANSWER: For the past two years the Navy has advised the Secretary of Defense and the Congress that the Navy Air-Launched TOMAHAWK (MRASM) program should not be pursued. It is very expensive, has limited utility, has doubtful survivability, is duplicative of other programs, and would reach a very late IOC (now estimated to be about FY 1989). The Secretary of Defense concurred with this Navy recommendation on at least one occasion in each of these years, and in 1982 the SASC and SAC concurred with the Navy and recommended termination of the program.

In each year, however, the Congress ultimately directed the Navy to continue actively in the joint development program. The Navy is complying explicitly with this Congressional direction. We are funding the joint MRASM program in FY 1983 at the level appropriated by the Congress; and in FY 1984 at the level directed by the Secretary of Defense.

QUESTION: Does the Navy have preferred alternatives to MRASM?

ANSWER: Navy-preferred alternatives to Air-Launched Tomahawk MRASM include Harpoon and I^2R MAVERICK for Air-Launched ship attack, and Tomahawk launched from ships and submarines for land attack and ship attack.

The HARPOON is presently adapted to air, surface and sub-surface launch platforms and is in wide use throughout the fleet. It will handle almost all current and many projected anti-ship requirements. Highly effective, low cost improvement efforts are on-going to make the HARPOON even better.

The I^2R Maverick is another stand-off weapon which complements the HARPOON capability.

As you know, Navy is actively pursuing the Tomahawk program as one of the highest priority programs. With proposed inventory objectives of Tomahawk, and application to anti-ship, conventional and nuclear land attack missions, we will have a broad range of distributed offensive power which will reduce some of the stand-off demands that have been placed on the aviation community over the years.

NAVY R&D MINE WARFARE

QUESTION: The Committee has been interested in the progress of Navy mine warfare, counter measures, and mine development efforts. Last year, the committee included report language in its FY 1983 report on page 131 outlining its concern over Navy funding for mine warfare, mine counter measures research and development programs.

Please provide to the subcommittee a listing of all R&D expenditures for Navy mine warfare programs and also please explain why the Navy has refused to spend the $5.555 million authorized and appropriated in FY 1983 for development of an intermediate water depth mine.

ANSWER: Mine warfare R&D expenditures:

The obligations and disbursements are as of the end of February ($ Million).

PE	TITLE	AVAILABLE FOR OBLIGATION	OBLIGATION IN FY 83	DISBURSEMENT IN FY 83
63260N	Airborne Mine Countermeasures	21.566	11.720	1.480
63502N	Surface Mine Countermeasures	31.572	12.941	1.554
63601N	Advanced Mine Development	9.554*	3.450	0.241
64576N	Influence MCM	1.821	0.781	0.093
64601N	Engineering Mine Development	12.712	12.216	3.328

* This includes $5.555 million directed for use in Intermediate Water Depth Mine development but which has not been released for obligation.

The $5.555 million authorized and appropriated in FY 83 for development of an intermediate water depth mine will not be spent for such a development. Reviews of this program indicated uncertainty in our ability to deliver such a mine to target areas where it would be most effective, and estimated development and procurement cost to be an unaffordable $1.2 billion. Because of these issues of uncertain deliverability and affordability, the development was terminated.

QUESTION: Please explain and justify the Navy FY 1984 budget request for the Captor Mod 2 program.

ANSWER: The Captor Mod 2 development is intended to improve effectiveness of Captor against a shallow transiting submarine. The Navy is now defining and structuring this development program.

IIR MAVERICK

QUESTION: The Navy once again is requesting funding in the R&D account for testing of the I^2R Maverick missile. How many missiles are to be procured and tested in FY-84 with the $19.6 million budgeted for the I^2R Maverick R&D program?

ANSWER: The Navy continues to strongly support the IIR Maverick missile and has reprogrammed $3.5 million into FY-83 RDT&E in support of OT-IIA (OPEVAL) scheduled for second quarter FY-84. This Navy reprogramming was specifically suggested by the Congress in the FY-83 Appropriations Bill. The $17.7 million (rather than $19.6 million) in the FY-84 RDT&E,N request is for the procurement of 15 missiles for OT-IIB in FY-85, completion of OT-IIA in FY-84 and initiation of A-6E TRAM integration.

SUBMARINE ASW STANDOFF WEAPON

QUESTION: Please provide a comparison of the projected submarine ASW standoff weapon inventory by year through 1995 with that of the current schedule for the phasing out of SUBROC from our SSN's.

ANSWER: (Deleted).

QUESTION: The committee asked once again in its FY 1983 report that the Navy provide it with an analysis of the feasibility of implementing a SUBROC life extension improvement program. Thus far, the Navy has not submitted that analysis to the subcommittee. When can we expect it?

ANSWER: The Navy's feasibility analysis of implementing a SUBROC life extension improvement program was provided in Secretary Lehman's letter of 15 November 1982.

CLASSIFIED PROGRAMS

QUESTION: Please provide for the record answers as to why there are major budget increases for the following classified programs: Retract Silver, Link Cedar. Please send the answers to the appropriate cleared individuals on the subcommittee staff.

ANSWER: The response to this question will be handled separately.

VTXTS

QUESTION: This year the Navy is requesting a total of $30.3 million to continue development of the VTX Hawk trainer. Does all of this R&D funding go toward development of modifications for making the Hawk carrier capable?

ANSWER: The $30.3 million in R&D requested for FY 1984 is broken out as follows:

a. $10.0 million to complete the pre-Full Scale Development effort begun in September 1982.

b. $15.7 million for development and integration of VTXTS major subsystems (T-45A carrier capable aircraft, simulator, training management system, and logistic support).

c. $4.6 million for Navy in-house pre-Full Scale Development and Full Scale Development (technical and logistic support).

QUESTION: Last year the subcommittee agreed to fund the Hawk R&D request, but it included language in its FY 1983 report to the effect that the Navy should not proceed with procurement of so-called dry Hawks, which would not be capable of making carrier landings. However, this year the Navy has included in its FY 1984 aircraft procurement budget, long lead funding for procurement of 54 dry Hawks. Please justify the Navy decision for proceeding with the dry Hawk procurement effort. If the Navy was not permitted to proceed with procurement of dry Hawks in FY 1984, would it opt to procure additional T-2's or would it continue to try to convince Congress of the wisdom of procuring dry Hawks?

ANSWER: In Senate Report No. 97-580, the Senate Appropriations Committee questioned "the economies of buying 'dry' Hawks instead of acquiring existing T-2C aircraft..."

The Navy is conducting an in-depth cost break-out and analysis of the VTXTS program. Included in this effort is a direct comparison of the relative costs of the current two-phase (dry/wet) program, an all carrier qualified (all wet) program, and a competitive fall-back alternative that includes a T-2C interim option.

Unfortunately, there is widespread misunderstanding about the basis for the current two-phase strategy and the interchangeability

of the T-2C and T-45B "dry" Hawk. The current two-phase strategy was structured to provide accelerated deliveries of T-45B aircraft to meet near term shortfalls caused by attrition and to permit phased development of the T-45A carrier-capable aircraft to meet long term training aircraft requirements. These requirements were generated by the cumulative effects of attrition, service life expiration, and escalating operating costs. The T-2C has been considered a back-up option to relieve near-term shortfalls and to provide competition to VTXTS during the pre-Full Scale Development phase. As such, the T-2C would be an interim measure that would allow time to recompete an alternative replacement system should the current VTXTS exceed cost thresholds. At the time of selection, the T-2C was estimated to be the most cost effective stop-gap measure available, although it required a compromise shift of a portion of advanced training into the intermediate training phase. The T-2C, and proposed versions thereof, is satisfactory for the intermediate phase training but is not adequate as an advanced trainer. Therefore, the T-2C cannot be considered a one-for-one replacement for the T-45B because it is not compatible with integration into VTXTS or capable of fulfilling the advanced training requirement. The small procurement quantities of T-2C's would be in addition to a full complement of follow-on VTXTS aircraft.

SEAFIRE ELECTRO-OPTICAL FIRE CONTROL SYSTEM

QUESTION: The Navy agreed to fund the SEAFIRE Electro-Optical Fire Control System in FY 1984. However, from reading Navy Program descriptive summaries, it appears as if the Navy does not intend to restart the program with the previous contractor, but rather recompete the entire program. Why has the Navy decided to proceed in this direction when it was the intent of Congress to restart the program?

ANSWER: The decision to compete the SEAFIRE development was made with the intent of producing a superior product which meets the operational requirement but at a reduced cost through use of existing technology and competition incentives. An RFP for competitive development will be issued in May 1983. It is expected that several contractors, including the previous one, will submit bids for this effort. Under present development plans, SEAFIRE will be delivered to the first ship (DDG-51 class) in FY 89.

QUESTION: Has the Navy decided to change the overall technical characteristics of the current system? In particular, has it decided to descope the system to give it not the ship to shore fire control capability, but only a ship to ship fire control capability?

ANSWER: The Navy has decided to remain within the state-of-the-art electro-optic technology to achieve the present operational requirement. Changes to the operational characteristics establish realistic performance expectations in various environmental situations but do not reduce the operational employment criteria against either ships or shore targets.

QUESTION: Why is the Navy moving so slowly in the area of deploying electro-optical control systems on its destroyers?

ANSWER: The Navy is proceeding as quickly as priorities and funding will allow.

Soviet Electro-optical Devices

QUESTION: Is it not true that the Soviets have already deployed electro-optical fire control systems on five classes of surface ships.

ANSWER: Yes, the Soviets had electro-optical fire control systems on naval combatants as early as 1962. Today, all major Soviet combatants have electro-optical fire control devices.

NATO SEASPARROW

QUESTION: The Navy has increased the NATO SEASPARROW line from $1 million in FY 1983 to $11.1 million in FY 1984. Please outline for the subcommittee what additional and new work will be accomplished with this $10 million increase.

ANSWER: The increase provides initial funding for the development of the Modification for the NATO SEASPARROW Surface Missile System to have the capability to fire the 5" Rolling Airframe Missile.

SUBMARINE SONAR DEVELOPMENT ENGINEERING

QUESTION: The Navy has increased the submarine sonar development engineering line (64503N) by nearly $20 million. Part of this increase was for TBX Array Mine Detection and Avoidance System. Why is this project being funded in FY 1984?

ANSWER: The thin line towed array (TBX) and the Mine Detection and Avoidance Sonar (MIDAS) are components of the Submarine Advanced Combat System (SUBACS) acoustic subsystem. The TBX increases the narrowband acoustic performance required to maintain an acoustic advantage over the improving Soviet submarine threat. MIDAS provides a mine avoidance sonar for the SSN 688 Class submarine. In addition, it significantly improves the ability of this class submarine [deleted.] The first SUBACS will be installed on the new construction 688 Class SSNs authorized in FY 1983. This project is being funded in FY 1984 to meet the shipbuilding contractor's required delivery date for the combat system.

QUESTION: What would be the impact on our mine warfare program if it was deferred to FY 1985?

ANSWER: Deferral to FY 1985 would delay installation of an effective mine avoidance sonar in 688 Class submarines by one year. More significantly, deferring this project to FY 1985 would result in a one-year delay in new construction attack submarine deliveries because SUBACS could not be delivered to the shipbuilder by the required delivery date. This would result in claims by the shipbuilder.

REGIONAL TACTICAL SURVEILLANCE

Question: The Navy is requesting $39 million in FY 1984 to increase R&D efforts for the Navy with respect to the Over-the-Horizon Radar program. It was the understanding of the subcommittee that the Air Force is the primary sponsor for the Over-the-Horizon Radar effort. Please provide to the subcommittee a rationale for why the Navy is funding this effort at the level requested in FY 1984.

Answer: In August 1982, OSD directed the Navy to develop a prototype relocatable OTH-R started under the ITSS project to support Navy wide-area surveillance requirements and sea lane defense. The $39 million in FY84 being requested by the Navy is to commence development of such a system. Although operation of the Navy system will be based on the same principles as that of the Air Force CONUS air defense system, significant differences exist between the operational application of the two systems by virtue of the mission each system is designed to support. [Deleted]. The planned Navy system is intended to detect both aircraft and ships in support of our maritime strategy in various regions of world. [Deleted] [deleted.] In order to assure the maximum transfer of applicable Air Force OTH-R technology to the Navy relocatable system, OSD has also directed that the Navy create a joint service project office to supervise prototype development.

JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)

QUESTION: Last year the Subcommittee cut the JTIDS's R&D line by $9 million, but this year the Navy is requesting $30 million more for JTIDS' R&D than was requested last year. Is the Navy attempting to recoup the cut made to the JTIDS' R&D line last year?

ANSWER: No attempt is planned in the FY-84 budget to recoup the 1983 $9 million SAC mark against JTIDS. Navy budget figures indicate the difference between January 82 President's Budget ($87.4 million) and January 83 President's Budget ($111.5 million) is $24.1 million and not $30 million as stated in the SAC question. This increase in funding between the years is due to the following factors related to direction received at DSARC in January 1982. These factors are as follows:

- Increase number of TECHEVAL/OPEVAL test platforms from 8 to 29 based on guidance received just prior to DSARC from Navy's independent test and evaluation group, Commander Operational and Test and Evaluation Force.
- Incorporate E-2C's avionics upgrade program "Improved Integrated Capability and Operational Readiness Enhancement" (I^2CORE) in conjunction with JTIDS configuration for the E-2C. This dovetailing of modifications eliminates a costly interim E-2C/JTIDS configuration previously planned only for TECHEVAL/OPEVAL.

QUESTION: It has been the intent of the Subcommittee to slow JTIDS's integration into Navy airborne and surface platforms. Does the FY 1984 JTIDS' R&D request accelerate integration of JTIDS' into Navy platforms?

ANSWER: No, as a matter of fact the Navy has slipped the Navy

JTIDS IOC by six months to bring the planned JTIDS deployment more closely into line with the USAF IOC. The IOC for the Navy's Class 2 DTDMA terminal is now March 1988 vice September 1987. The IOC for the USAF Class 2 TDMA terminal is also 1988.

Today we have over 100 ships and 1400 aircraft equipped with tactical data systems and data links. The anti-air warfare threat of the early 60's has grown in quality and quantity and the reaction time has shrunk to seconds. Now, almost every type of hostile platform has the capability to fire missiles at our forces. Each warfare area -- air, sub-surface and surface, plus electronic warfare -- needs its own data net to manage its unique flow of battle information in a jamming environment.

Today's single data link net is incapable of handling the war-at-sea threat of the 80's much less that of the next decade. We have recognized this shortcoming and developed a robust Joint Tactical Information Distribution System (JTIDS) architecture, Distributed Time Division Multiple Access (DTDMA) which will include the baseline TDMA architecture. This provides the required capacity to operate multiple, simultaneous nets, each with anti-jam protection. The way we command our forces in combat has changed - we exercise the concepts of decentralized warfare commanders to enable the Battle Force commander ...the officer in tactical command (OTC)... to maintain the overall perspective in a highly complex warfare arena. The multiple JTIDS nets allow each commander to most effectively control his forces in a jamming environment.

Let me discuss the USN/USAF memorandum of agreement signed by the CNO, Admiral Watkins, and the Air Force Chief of Staff, General Gabriel, on 9 September 1982. Its purpose is to accelerate ongoing USN/USAF joint efforts to enhance the effectiveness of maritime operations, and in particular defense of the SLOC's by utilizing USAF capabilities. The memorandum states:

> Anti-air warfare and counterair operations are the mission areas in which the Air Force capabilities can provide the most immediate gains to maritime operations. The Air Force will also improve its antiship capability in support of the antisurface ship warfare mission. The primary element will be a training program to include realistic joint training and exercise activity to ensure that the capabilities established are viable within the current operational framework.

The key point here is that operating in the maritime environment requires the robustness and flexibility provided by the Navy's JTIDS architecture. It would not be unusual at all for a Battle Force to be using up to 10 A/J voice nets and 4-6 data nets, all emanating from a single JTIDS terminal, aboard carriers, cruisers and AAW destroyers - <u>that</u> is the flexibility of JTIDS with the DTDMA architecture. The payoff will be high because the E-3A AWACS has a lot of sensor and air control capability to contribute to the AAW outer air battle problem. Thus, AWACS must be interoperable with the Battle Group, as well as other USAF/USA/NATO forces.

We have a funded and executable plan to put JTIDS (DTDMA) into the Fleet starting in early 1988. The first chart shows the key milestones of this plan and compares Navy/Air Force schedules. I have been directed by Assistant Secretary of the Navy for Research and Engineering not to make any changes to the program that will jeopardize its scheduled introduction. Any enhancements to the

system will be done as a Pre-Planned Product Improvement (P3I). We need to help the Fleet with today's problems instead of talking about the future. In this vein, we are well into the installation planning for USS CONSTELLATION, the first carrier to receive JTIDS. We are installing 1,988 terminals of 3 classes as shown on the second chart.

The initial operational capability for Navy's DTDMA JTIDS will include all three types of terminals shown on the third chart. We are fully committed to introducing this critically needed capability throughout the Fleet. A big challenge in DTDMA development is maintaining backward compatibility with the Air Force, Army and NATO TDMA versions of JTIDS - this is costing us 20% of our terminal capacity and about 12% of the R&D costs.

One final point concerns the message formats that we intend to use with JTIDS. This message format standard, called TADIL J, has been jointly agreed to and developed over the past four years. We must commit and fund the TADIL J program and insist upon a 1989 introduction. Although TADIL J will heavily affect the tactical data systems software, we need the full capability of this system which is designed to take us into the next century.

In fighting the war-at-sea in the eighties and beyond, our battle groups need a flexible, multi-functional battle management system, capable of handling the toughest threat our potential adversaries can throw at us -- all in a high density jamming environment. Navy's DTDMA meets the full joint operational requirement for JTIDS and will give us the needed margin against a highly capable enemy at sea. We must get JTIDS operational and then improve through planned product improvement.

PROGRAM OVERVIEW

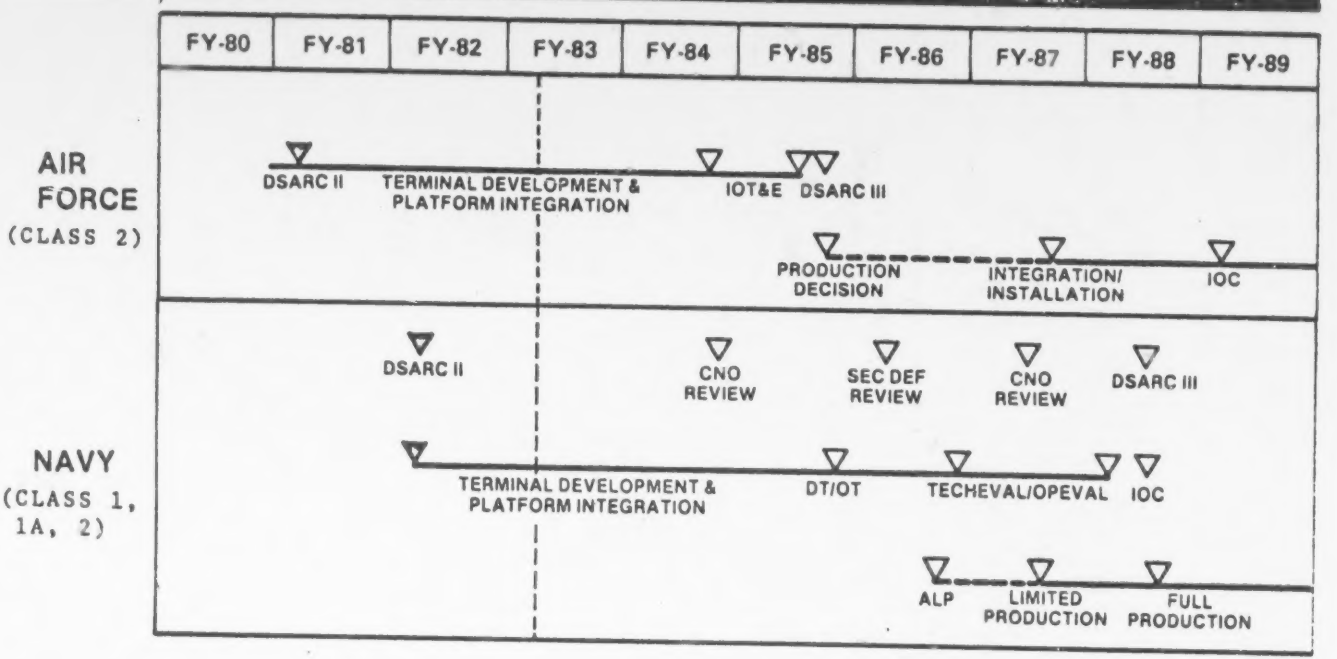

CHART 1

JTIDS INSTALLATION PLAN

UNCLASSIFIED

	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	TOTAL	DSARC
CLASS 1												
CV	1		1	1	2	4	3	2	1		15	15
DDG					6	8	10	10			34	34
CG			1	1	4	9	10	6			31	31
LCC						1	1				2	2
TOTAL CL-1	1		2	2	12	22	24	18	1		82	82
CLASS 1A												
E2	4		6	14	16	16	16	13			85	85
TOTAL 1A	4		6	14	16	16	16	13			85	85
CLASS 2												
F-14				30	70	70	70	70	25		335	335
F-18(P)	24		66	202	202	202	199	68			963	650
F-18(R)				55	55	55	55	55	55	39	369	682
EA6B					6	24	24	19			73	73
EP3					6	6					12	12
DD963					4	6	10	10			30	30
LHA						2	2	1			5	5
LHD						1	4	4			9	9
TOTAL CL-2	24		66	287	343	366	364	227	80	39	1,796	1,796
USMC												
TACC/TAOC			5	10	10						25	25
TOTAL	29		79	313	381	404	404	258	81	39	1,988	1,988

CHART 2

JTIDS TERMINAL DESCRIPTION (U)

CLASS 1 (Carriers, Cruisers, AAW Description)

- o High Power
- o TX/RX 300 Kbps
- o Ten Voice Channels
- o Multiple Data Channels

CLASS 1A (E-2C's)

- o TX/RX 160 Kbps
- o Four Voice Channels
- o Multiple Data Channels

CLASS 2 (F-14's, F/A-18's, EA-6B's, EP-3's, ASW Destroyers)

- o TX 80 Kbps/RX 160 Kbps
- o Two voice channels
- o Multiple Data Channels

CHART 3

AIRBORNE SELF PROTECTION JAMMER (ASPJ)

QUESTION: The Navy is requesting $5.1 million in ASPJ improvements in FY 1984 which were not projected as being required last year. Please outline why these ASPJ improvements are required this year.

ANSWER: Because of the ever-changing electronic warfare environment, constant improvements to electronic warfare equipment are necessary. Improvements to the ASPJ were projected last year and funded under the Project Unit entitled "ASPJ Common Development." After the January 1982 meeting of the Defense Systems Acquisition Review Council (DSARC), OSD approved a Pre-Planned Product Improvement (P^3I) program and a Project Unit entitled "ASPJ Improvements" was established to specifically delineate the funding. Funding in 1984 will provide significant improvements in the reprogramming capability of the ASPJ to preclude costly alterations of memory chips. This will result in a life cycle cost savings of over $300 million.

ALWT

QUESTION: Please provide the Subcommittee with an up to date analysis of the advanced development program for the Advanced Light Weight Torpedo.

ANSWER: The sonar integration and propulsion problems identified during demonstration and validation testing have been solved. Five complete integrated torpedoes, the 100S series, which incorporate the propulsion system from the propulsion test vehicle and the sonar and guidance system from the acoustic test vehicle, are available for testing. Eight test runs have been completed with the 100S series. On 16 March 1983, a completely successful run of a 100S torpedo was achieved. The torpedo ran until fuel exhaustion, achieved full power, executed numerous turns and depth excursions and the guidance system and sonar performed all of their functions. A design readiness review will start in May 1983 to prepare for transition to full scale development.

QUESTION: Last year the Appropriations conference agreed to provide $18 million for ALWT engineering development but directed the funds for that purpose may not be obligated or expended until 30 days after the Secretary of the Navy stated in writing that firm costs and schedules for the ALWT program were within reach. This report is to be submitted to the Appropriations Committees not later than June 30, 1983. Has there been any change in the ALWT program within the last three months that would make the Navy think that this direction can not be met?

ANSWER: There has been no change in the ALWT program which would indicate that all directions received from the Appropriations Committees will not be met.

QUESTION: Please provide to the Subcommittee an assessment of the corrections made to previous sonar and propulsion problems identified in ALWT during advanced development.

ANSWER: An assessment of corrections for the propulsion system and for the guidance and control system is summarized below.

Propulsion System: The propulsion system has undergone just over 100 tests on the test stand at the propulsion system contractor,

Garret Pneumatic Systems Division, Phoenix, AZ. Most of the testing up until September 1982 consisted of system characterization tests and preliminary tests for the early sea water runs of a propulsion test vehicle. Numerous technology problems were uncovered in this test series. In addition, 20 runs of the propulsion system in-water were conducted during the same time frame resulting, again, in numerous problems including significant technology difficulties. By September 1982, these problems and difficulties were well understood and a redesign of the boiler reactor portion of the propulsion system was undertaken. Starting in late October 1982 and going to the present (5 April 1983), a total of 10 full systems tests have been conducted on the test stand with no failures and only minor difficulties encountered. On the basis of test stand work, all previous design problems are corrected. During the same recent time period, six propulsion system runs have been conducted with the test vehicle in-water. The first four exhibited some minor problems with the autopilot operating the test vehicle and an additional problem with feed water control which has been corrected. The last two propulsion test vehicle runs have been complete successes demonstrating full power performance over a wide range of dynamic, maneuvering conditions. Finally, since 22 December 1982, the propulsion system has been used in seven powered runs of the full system torpedo. In the first five of these runs, minor integration and control problems arose. All have been corrected and the two most recent powered runs of the full system torpedo have been completely successful with flawless operation of the propulsion system.

Guidance and Control: In the narrow context of guidance and control, the autopilot and AN/AYK-14 computer have been operating in both the propulsion test vehicle and the acoustic test vehicle, the latter being a vehicle which has been used to test the sonar. In the larger context of including the sonar within guidance and control, in-water testing has been going on for just over one year. The equivalent of 50 in-water runs was accomplished by the static sonar test series known as ALSTAR wherein all sonar modes with all pulse types and all beamforming and counter-countermeasure requirements were tested against static, mobile and submarine targets. The entire series of tests demonstrated the sonar has met its acoustic objectives. The same sonars have operated in the powered acoustic test vehicle for the past nine months, again demonstrating satisfactory operation. During the same time that the sonar tests have been going on, system integration between the sonar and remainder of guidance and control uncovered numerous very difficult system integration problems. These have been corrected by a redesign of the sonar receiver and a considerable upgrading of test software used to uncover the guidance and control interface problems. The integration problems were successfully completed by December 1982 and the previously noted full system in-water test series began. These seven shots demonstrated a level of in-water difficulty which could not be uncovered during test stand system integration. These problems have now been solved and, on 16 March 1982, the full system torpedo sonar, guidance and control ran for the first time. A second run was conducted on 23 March. Both were complete successes.

QUESTION: Does the FY 1984 R&D budget request for ALWT include any funds for management reserve?

ANSWER: There are no funds in the FY 84 ALWT budget request for management reserve.

BATTLE GROUP AAW COORDINATION

QUESTION: Battle Group AAW Coordination. Please outline for the Subcommittee the importance of this particular program for the coordination of AAW activities within the Carrier Battle Group. Does the Navy consider this to be a high priority R&D program?

ANSWER: The need for Battle Group AAW Coordination (BGAAWC) is re-emphasized by the results of every fleet exercise. Today's fleet experiences radar detection problems and lack of a coherent air picture under heavy air track situations. Statistically, under these conditions, we find that our detection rate runs only about 75 percent. BGAAWC provides major increases in AAW effectiveness by using new design, computer aided control, display and decision systems to create a coherent air picture which allows coordination of all Battle Group AAW weapons and assures detection which is near 100 percent. More importantly, with BGAAWC, AEGIS ships can employ all AAW sensors and weapons more effectively and approach 100 percent engageability against an attack, minimizing the waste of missile ammunition. The force multiplier effect of BGAAWC allows missile systems in our older cruisers and destroyers to make significant contributions to the modern AAW battle.

The BGAAWC program is a high priority R&D program already having produced tangible and impressive results:

- A Digital Data Converter has been developed and is being tested. This not only improves the detection capability of in-service ships, it significantly reduces false tracks transmitted on the link.
- A prototype Automatic Gridlock System has been developed. It allows a participating unit to receive and process detection and tracking data from other Battle Group ships and to integrate tracks from its own sensors with externally-generated tracks. Automatic Gridlock goes a long way toward providing a coherent and common air picture for the Battle Group.
- An AEGIS Display System is operational in USS TICONDEROGA (CG 47). It geographically portrays the tactical environment and summaries resource status. Information is displayed in a format which aids the Commanding Officer and Tactical Action Officer in decision making. It also supports the Embarked Commander and Staff Tactical Action Officer in managing and directing forces under their command.

As the program proceeds, we expect to expand this technology to more Battle Group wide force coordination operations. This development effort is underway. Upgrades to be phased include:

- Automated decision aids for tactical decision making.
- Consoles to provide force level doctrine management.
- Battle Group control features.
- Over-the-horizon information to broaden the coherent air picture.
- SM-2(N) battle management.
- JTIDS.
- Remote launch and forward pass of weapons.

F/A-18 FLIR

Question: Is there any funding in the fiscal year 1983 F/A-18 R&D line or the fiscal year 1984 F/A-18 squadrons line for further development and testing of the F/A-18 FLIR?

Answer: $1.7M is planned in F/A-18 fiscal year 1983 RDT&E funding for final integration effort on the F/A-18 FLIR. This was necessitated by congressional fiscal year 1982 reductions in F/A-18 RDT&E funding. The Navy is planning to begin development of the Laser Target Designator/Ranger (LTD/R) for the F/A-18 FLIR in fiscal year 1983 and will continue that development in fiscal year 1984.

Question: Please provide the committee with an up to date technology assessment of the F/A-18 FLIR. Has it progressed according to Navy and Marine Corp desires, as of date?

Answer: With the exception of the interruption resulting from reductions in the fiscal year 1982 F/A-18 RDT&E funds, FLIR development has proceeded smoothly. Measured individual performance parameters have all met or exceeded specifications. Corrections for discrepancies noted during Navy testing will be completed in fiscal year 1983 with final integration and Navy Flight Test at Naval Weapons Center, China Lake, CA. All specifications are expected to be met or exceeded.

SUBMARINES (ADVANCED)

Question: The FY 1984 budget request for submarines (advanced) is nearly $40 million larger than that of FY 1983. Please provide a justification for this major funding increase.

Answer: The major portion of the increase supports build-up of the technology to preserve the option to proceed with a new class of nuclear attack submarine for introduction in the 1990's. [Deleted]. We are making improvements to the SSN 688 class, but the planned improvements will impose design weight and space limitations in our ability to further improve SSN 688 class performance. A new design submarine is needed to realize the significant advances required. The increased funding in the Submarines (Advanced) program will preserve the option to proceed with authorization of the new design attack submarine in the late 1980's.

ADVANCED NUCLEAR REACTOR COMPONENT SYSTEMS DEVELOPMENT

QUESTION: The Navy is requesting a major funding increase in the Advanced Nuclear Reactor Component Systems Development Program. A portion of this funding is to be used to begin new design work for a follow on new nuclear reactor. However, the Navy has no R&D funding for design for a new nuclear submarine.

Why does the Navy desire to begin design work on a new nuclear reactor core, when it has not budgeted for design of a new nuclear submarine?

ANSWER: The work is principally for long lead component development necessary for an advanced design reactor plant, not for reactor core development. The work is an application of technology currently evolving and is being undertaken in FY 1984 to avoid limiting the Navy's options for a new attack submarine.

ACOUSTIC SEARCH SENSORS

QUESTION: The Navy is requesting $7.1 million for a new project start air common acoustic processing. This project was not identified as being required last year. What has changed in the past 12 months to persuade the Navy that this project should be funded in FY 1984?

ANSWER: Airborne Common Acoustic Processing (ACAP), formerly Major System Mode-11 (MSM-11), will be the Navy's air operational Advanced Signal Processor (ASP) software (common to all air ASW platforms). ASP is a programmable processor, and as such software is required to implement the new sensors currently in advanced and engineering development. This software will use a high order language (SPL-1) and modular architecture for reduced life cycle cost. The MSM-11 architecture design was initiated within PE64266N, Advanced Signal Processor, as reflected in the FY 1983 RDT&E Descriptive Summary. In FY 1984, the project was identified within the Acoustic Search Sensor (PE64261N) Program which (provides for the engineering development of new sensors) since the software is required to support the sensors.

EXPENDABLE RELIABLE ACOUSTIC PATH SONOBUOY (ERAPS)

QUESTION: Last year the Appropriations Conference provided only $10 million for continued development of ERAPS. The Conferees noted that the ERAPS Sonobuoy had been developed for nearly 20 years and that the program continued to exhibit high technical risks. When will the Navy be submitting its report to Congress on the technical progress of ERAPS and its overall cost effectiveness?

ANSWER: The ERAPS program continues to be a high priority Navy RDT&E project. The requested report has been completed and is currently in final Navy staffing prior to submission to Congress. It explains in some detail how ERAPS provides a vital link in our overall ASW program. It should be stressed that this sonobuoy is not a replacement for any sensor we currently have in our inventory, but a new capability which we need in order to maintain our lead on the Soviet Submarine Threat.

QUESTION: How much Navy R&D money has been expended on the ERAPS program to date?

ANSWER: The ERAPS advanced development phase was initiated in FY 1975 and completed in FY 1979, expending $9.4 million. The engineering development phase was initiated in FY 1980 and has expended $33.0 million for a total program to date of $42.4 million.

QUESTION: What is the Navy's rationale for developing active sonar systems as well as passive acoustic detection sonars? Is the fact that the Soviets are continuing to further quiet their submarines a principle driver behind development of the ERAPS sonobuoy?

ANSWER: The Navy's rationale for developing active sonar systems, such as ERAPS, is that [deleted.] Active sonar improvement programs for ships (SQS-53 Improvement) and submarines (SUBACS) are in place. ERAPS can provide ASW aircraft with active sonar detection capability needed today against the current Soviet submarine threat. [Deleted].

QUESTION: What are the Navy's deployment plans for ERAPS?
ANSWER: ERAPS is required to be compatible with all ASW aircraft hardware and software and to address handling, storage, safety, training and maintenance procedures prior to its Operational Evaluation in fiscal year 1987. Integrated Logistics Support (ILS) planning for ERAPS is scheduled to begin in fiscal year 1984 in order that revisions can be completed for all logistics support issues before the Initial Operational Capability (IOC) date in fiscal year 1989.

QUESTION: On what ASW aircraft will ERAPS be deployed?
ANSWER: ERAPS requires the AN/UYS-1 Advanced Signal Processor to process ERAPS data; currently the Navy plans to equip all P-3C, S-3B and LAMPS MK III ASW aircraft with the AN/UYS-1. Mechanical compatibility has been demonstrated on P-3 and S-3 aircraft.

QUESTION: Are there any ERAPS characteristics that would prevent its certification for operational evaluation in the P-3C, S-3B, or LAMPS MK III aircraft?
ANSWER: There are no ERAPS characteristics that would prevent certification of ERAPS for operational evaluation in P-3C, S-3B and LAMPS MK III aircraft.

QUESTION: Have all critical ERAPS subsystems been tested?
ANSWER: Significant technical progress has been demonstrated during the ERAPS development program and no major technical issues are unresolved. All the key subsystems that are needed for ERAPS have been developed and demonstrated. During 1982, full ERAPS sonobuoy systems were successfully tested acoustically and full mechanical models were successfully air dropped. The next step is to combine these tests into full acoustic testing of air dropped sonobuoys at sea.

QUESTION: What was the impact of the Congressional cut to the ERAPS R&D line in FY 1983?
ANSWER: The FY 1983 Congressional reduction impacted the program in two ways. First, the planned procurement of full-up sonobuoys to support contractor and Navy testing was reduced from 53 to 12 units. This reduction was made in order to maintain the contractor engineering team on board. Program tasks were reordered to do previously identified cost saving engineering changes earlier. The second impact is a delay of critical design review of 6 months to 1 year.

QUESTION: Are you going to have to go back and redesign part of the system?
ANSWER: No. There is no requirement to redesign any part of the system as a direct result of the Congressional funding reduction. Some component redesign was identified during previous subsystem testing and is primarily directed towards cost reduction in production rather than development.

VERTICAL LAUNCH ASROC

QUESTION: Please describe the current status of the vertical launch ASROC program following the restructuring of the common ASW standoff weapon program last year.

ANSWER: Vertical Launch ASROC was restarted in April 1982 with funding in FY 82 and 83 from the Common ASW Stand-Off Weapon. VLA appears under its own line item in the FY 84 budget submission. Flight table and interface testing will be conducted by NOSC San Diego and NWC China Lake in FY 83. A request for proposal has been let and a major contractor will be brought into the VLA program in October 1983.

QUESTION: Please provide a comparison of the principal technical characteristics of the current ASROC weapon with the vertical launch ASROC. The unit cost of vertical launch ASROC is nearly three times that of the current ASROC. What additional capabilities are we getting with vertical launch ASROC that justify this additional expense?

ANSWER: The principal technical characteristics of ASROC and VLA are compared in the following table.

	ASROC	VLA
Maximum range (yards)	(Deleted)	(Deleted)
MK 46 MOD 5	(Deleted)	(Deleted)
Depth bomb	(Deleted)	(Deleted)
ALWT	(Deleted)	(Deleted)
Maximum altitude (feet)	(Deleted)	(Deleted)
MK 46 MOD 5	(Deleted)	(Deleted)
Depth bomb	(Deleted)	(Deleted)
ALWT	(Deleted)	(Deleted)
Maximum length (inches)	179	200
Maximum diameter (inches)	13.75	14.1
Launch weight (lbs)	1,073	1,660
Launch systems	MK 26, MK 16	MK 26, MK 16
	-	VLS

VLA will be capable of being launched from the Vertical Launching System (VLS). Since VLS will replace the current ASROC capable launch system; without VLA, there will be no ASROC capability on VLS equipped ships. VLA doubles the delivery range of current ASROC with existing payloads. As well, it will deliver the ALWT to twice the range that ASROC will deliver the MK 46 MOD 5 (NEARTIP). VLA maintains the intermediate range, quick reaction, all weather ASW weapon delivery capability to these extended ranges which regains the tactical advantage of being able to conduct a VLA attack prior to a Soviet submarine reaching torpedo attack position.

QUESTION: Please provide for the record a listing of all vertical launch ASROC prototype tests and all propulsion control technology tests.

ANSWER: The following tests have been conducted:

Extended Range ASROC

401A rocket motor

12 static tests (6 thrust cutoff (TCO) and 2 Thurst Vector Control (TVC) tests)

6 Flight tests (4 TCO, 1 TVC and 1 spin flight)

402A rocket motor

2 Static tests

Vertical Launch ASROC prototype

14 Static tests (2 ballistic, 12 TVC)
2 Vertical (rail) launch flight tests
1 Vertical (VLS engineering development model) launch flight test

Vertical Launch Propulsion/Control Technology

12 Static tests, vertical launch booster (2 ballistic, 10 training)
2 Extended endurance TVC tests
1 TCO flight test (402A extended range ASROC motor)
1 TCO statis test (402A extended range ASROC motor)

Vertical Launch ASROC

2 Extended endurance TVC tests
1 Vertical Launch booster TVC test

ECX STRATEGIC COMMUNICATIONS AIRCRAFT

QUESTION: The Navy is asking the congress to support a total of $179.5 million in FY 1984 for the ECX Strategic Communications Aircraft. Please provide a breakout of the RDT&E and procurement budget requests for the record.

ANSWER: The funding is broken-out as follows:

PROCUREMENT	($M)
Non-recurring airframe(engineering, tooling)/CFE	27.0
Recurring airframe (long lead item)/CFE	12.0
Non-recurring engine tooling	2.7
Recurring engines (long lead items)	8.0
New mission avionics (long lead)	58.0
TOTAL	107.7

RDT&E	
Airframe	
Nonrecurring System Eng/Design	30.0
Recurring Aircraft fabrication/integration and assembly	13.0
Nonrecurring Engine development	1.9
Recurring Engine installation	1.4
Non-recurring mission avionics engineering, design and integration	2.9
Non-recurring flight deck avionics/hardware/integration	10.3
Contractor test and evaluation/class I&II mockups	9.5
Navy field activity management	2.8
TOTAL	71.8

QUESTION: The ECX is to be acquired to replace existing EC-130Q Strategic Communications Aircraft. Should congress decide not to proceed with ECX procurement this year, what would be the net impact on the overall Navy Strategic Communications program?

ANSWER: In the DoD report "Alternatives to the Navy TACAMO Airborne Relay System" sent to Congress on 25 January 1982, Secretary Weinberger stated that "There is no system or combination of subsystems on the technological horizon which can operate in the severely degraded trans- and post-attack environment with the effectiveness of TACAMO." Consequently, [deleted] [deleted]. This would have serious national security implications since it would [deleted.]

QUESTION: What is the principal program philosophy behind the ECX program? Is it to exploit existing hardware and technology to provide an accelerated procurement program to meet Navy force level requirements in the late 1980's and early 1990's?

ANSWER: Yes. To preclude further investment in overweight, range-limited, and slow EC-130 aircraft, nine of which reach end of extended service life between 1986 and 1989, the procurement of an existing, in-production airframe was determined to be the most cost effective and lowest risk method to have a replacement aircraft operational to meet continuing strategic communications requirements throughout the 1990s.

QUESTION: Does the Navy consider this acquisition strategy to be cost effective?

ANSWER: Yes. Changes in [deleted] have expanded the mission requirements of the TACAMO airborne communication system beyond the capabilities of the EC-130 airframe. ECX is designed to overcome deficiencies of the EC-130 and perform the TACAMO mission of the future by providing: increased range and endurance, growth potential, EMP hardening, a [deleted] air refueling, and increased speed [deleted.] In addition to these advantages, and improved reliability and maintainability of a modern airframe, ECX is less expensive to own and operate from the standpoint of Life Cycle Costs (LCC). A fleet of 29 EC-130s at a Life Cycle Cost of $4.2B (FY81$) would be required to marginally perform the TACAMO mission of the 1990s; whereas, only 15 ECX at a Life Cycle Cost of $3.8B can provide a significantly more survivable link which is as endurable as other aircraft in the MEECN system.

In the DoD report "Alternatives to the Navy TACAMO Airborne Relay System" sent to Congress on 25 January 1982, Secretary Weinberger stated that [deleted.]

QUESTION: One of the major reasons why the Navy is requesting the new ECX strategic communications aircraft is because with the new requirement to provide connectivity over the Pacific ocean, the EC-130 aircraft has severe mission limitations. Just what exactly are the limitation of the EC-130 in terms of speed and range, to provide connectivity over the Pacific ocean?

ANSWER: The introduction of the TRIDENT ballistic missile submarine into the Pacific, with its expanded operating area, has greatly [deleted] and taken the aircraft further from the bases from which it must deploy. The EC-130 range is [deleted] limiting deployment flexibility by [deleted] in order to reach an area that guarantees [deleted] in the Pacific. Its speed is approximately [deleted] limiting its ability [deleted.]
Both these limitations necessitate having more aircraft airborne in transit to and from the operating areas to insure the [deleted.]

QUESTION: Last year the FY 1983 authorization conference report addressed the issue of the feasibility of procuring more modern communications gear for the EC-130 aircraft. Has the Navy addressed this issue and if so what results can it provide to the subcommittee?

ANSWER: On 11 March 1983, DoD forwarded the "Airborne Strategic Communication System Alternatives (Navy) and Related Procurement Strategies" to the Chairmen of the House/Senate Armed Services and Appropriations Committees of Congress. It studied three alternative methods of upgrading the current communications suite. A two-phased approach incorporating a computer-controlled bus architecture was recommended because it presented the lowest technical risk and the least impact upon TACAMO operations while providing for future improvements to remain compatible with the Minimum Essential Emergency Communications Network (MEECN).

ELF - EXTREMELY LOW FREQUENCY COMMUNICATIONS SYSTEM

QUESTION: Please outline the FY 1984 projects for the ELF program. Please specify the following projects: Systems Evaluation Operations, Environmental Safety Research and Development, Fleet equipment research and development, shore equipment research and development.

ANSWER: The $58.497 million of R&D in FY 84 will include the following:

I. System Evaluation Operations:

Operation/Maintenance and Support. Operation of Wisconsin Test Facility (WTF). Support to Forest Service. Continue interference mitigation research with local utility companies.

Receiver Installation. Install experimental receivers and receiving antennas in submarines.

II. Environmental and Safety Research Development:

Grounds and Fault Detection Development. Design antenna and fault detection system and ground specifications to reduce the possibility of shock hazards. Supports suggestion by the National Academy of Sciences in its August 1977 report.

Continue Environmental Monitoring Program. Manage environmental monitoring program to include studies of wildlife and vegetation. Establish liaison with local government environmental protection agencies and officials to ensure coordination and cooperation by the Navy at all levels of government.

III. Fleet Equipment Research and Development:

Submarine receiving systems, including receiving antenna, software, preamplifier, receiver and message output devices.

Shipboard Antenna Development. Develop improved receiving antenna for submarines for high speed submarine operations.

IV. Shore Equipment Research and Development:

Design equipment for the shore based transmitters including message processing and encoding equipment, software, ELF power amplifiers, transmitting antenna systems and ground and fault detection equipment, and standby power generators.

The $13 million of MILCON in FY 84 will include the following:

Construction of Michigan transmitter building, security building, signal filtering building, standby power generation building, roads and security fencing/lighting. Land acquisition and clearing and connections to local utility companies will also be required.

QUESTION: Please provide to the subcommittee the current ELF submarine summary of test performed with ELF system. Please include tests on operational submarines, tests using the Wisconsin transmitter, tests using experimental receivers.

ANSWER: Since July 1976, the Navy has routinely deployed experimental ELF receivers on operational submarines for the purposes of

1. Gathering ELF propagation, noise and receiver performance data in operational areas of interest;
2. Testing of high speed antenna;
3. Development and refinement of ELF operational concepts for all submarines; and
4. Operational use of the ELF capability at the Wisconsin Transmitter Facility to support missions of special importance.

During the period ending December 1978, receivers were installed and deployed continuously on 5 ballistic missile submarines. In addition, the equipment was deployed on 11 attack submarines which took part in some 10 fleet exercises. ELF reception has been demonstrated in the North Atlantic, North Pacific, Arctic Oceans and in the Mediterranean, Norwegian and Greenland Seas. ELF messages have been received at speeds up to (d)knots at (d) feet keel depth and at(d)knots, (d) feet keel depth. More recently, beginning in August 1981, experimental receivers have been deployed on 5 ballistic missile submarines (including the USS OHIO on its first patrol) and on 2 attack submarines. The utility of providing ELF connectivity to operational submarines while operating at depth has been demonstrated on numerous occasions some of which are highlighted below. Finally, the performance of the ELF test system can be scaled directly to predict the performance of the ELF Communications System presently being designed. Performance of the operational ELF system can be predicted with a great degree of confidence.

The first tactical use of ELF was aboard the [deleted] after exercise TEAMWORK 76 in September 1976 in the Norwegian Sea. [Deleted] remained in the Norwegian Sea to act as escort for the NR-1 which was tasked [deleted] ELF was used routinely by the Commander Submarine Forces Atlantic to acknowledge [deleted] situation reports while it was on this mission.

When USS LOS ANGELES (SSN 688) made its first operational deployment to the Mediterranean in the Summer of 1977, an experimental ELF receiver was aboard. This equipment was tested during the NATO exercise NATIONAL WEEK XXIII. The LOS ANGELES received test and exercise messages including one originated by the submarine element coordinator aboard the USS SARATOGA, the carrier that LOS ANGELES was escorting.

During the exercise OCEAN SAFARI 77, the USS GLENARD P LIPSCOMB (SSN 685) provided an excellent example of the usefulness of ELF connectivity at depth. LIPSCOMB was operating with a taskforce near Spain. While conducting sonar search at depth, an ELF message was received from the task force commander to establish communications. The LIPSCOMB responded and was tasked to conduct a simulated [deleted.] Without ELF, this opportunity would have been missed.

In 1978, USS ARCHERFISH (SSN 678), equipped with an experimental ELF receiver, took part in the exercises COMBINED EFFORT/NORTHERN WEDDING while north of the British Isles. ELF messages received by the ARCHERFISH caused the ship to initiate communications with the task force commander several times to receive high priority operational information affecting ship safety.

Much of the testing on the ballistic missile submarines is conducted on a "not to interfere" basis, since these ships are usually on deterrent patrol. In June 1978, USS SIMON BOLIVAR

(SSBN 641) was tasked to maintain continuous ELF reception on a transit to Ft. Lauderdale for a 3 day period. Not only did the ship maintain connectivity easily while performing all of the maneuvers necessary for its mission-- but it demonstrated that the ship could reestablish VLF connectivity within (d) minutes after receiving an order by ELF.

Recent ELF test highlights continue to confirm the value of ELF connectivity. The USS HENRY CLAY (SSBN 625) was tasked to maintain ELF connectivity (d) while on patrol in the North Atlantic. During that time ELF was used by fleet headquarters to alert the CLAY to intelligence advisories and to copy the TACAMO broadcast [deleted]

Later, the USS TECUMSEH (SSBN 628) was also tasked to maintain ELF connectivity [deleted.] This ship was also alerted by ELF to copy TACAMO and on several occasions was also alerted to traffic on the VLF and satellite broadcasts. Receipt of [deleted.] Messages via higher data rate systems by these ships after being alerted by ELF demonstrated that ELF can be used to maintain connectivity to the National Command Authority while keeping the submarines deep. ELF itself cannot deliver the Emergency Action Message.

The USS OHIO (SSBN 726) deployed on its first patrol in the fall of 1982, with an experimental ELF receiver aboard. The ship gathered ELF data and received ELF messages over a 2 month period in the TRIDENT operating area.

QUESTION: Has the first Trident submarine, the USS OHIO, successfully demonstrated ELF reception? There has been considerable confusion as to the total research and development costs for the ELF system. Please provide to the subcommittee a total cost for research and development relating to the ELF system.

ANSWER: USS OHIO (SSBN 726) had an experimental ELF receiver installed for her first TRIDENT patrol in 1982. ELF reception occurred (d) percent of the time irrespective of the ship's heading. [Deleted] percent of ELF messages were received in (d) minutes or less and this with only a partial ELF transmitting capability in operation.

The total FY81-FY88 RDT&E funding for the ELF system as approved by the President on 8 October 1981 totals $195.5 million.

NTU (NEW THREAT UPGRADE)

QUESTION: The Navy is requesting a total of $47.6 million in FY 1984 for the New Threat Upgrade Program, a program which will upgrade the TERRIER AAW Combat Weapons System. The NTU provides baseline CGN's with SM-2 missiles with the capability to intercept Backfire launched AS4 and AS6 type cruise missiles into standoff jammer environment through a number of different sensor control and engagement system improvements. Just what are the major subsystem improvements which are being made with the New Threat Upgrade?

ANSWER: The New Threat Upgrade Combat System is primarily a detection system upgrade for major AAW combatants which provides significant capability to engage AS4 and AS6 type cruise missiles in a standoff jamming environment. In the case of the twenty-two TERRIER cruisers and destroyers, NTU is added to an already installed SM-2 capability. The ten TARTAR cruisers and destroyers

will be receiving the SM-2 capability and the New Threat Upgrade Combat System which will be developed concurrently.

New Threat Upgrade provides an improved version of the AN/SPS-48 three dimensional search radar with greatly improved antenna sidelobes, adaptive energy management and double the average power transmitted. The AN/SPS-49 two dimensional search radar is also modified with automatic target detection, improved sidelobes and a maximum [deleted] degree upspot to achieve high flyer detection. In addition to these radar modifications, an integrated automatic detection tracking system, AN/SYS-2, is added. This receives inputs from multiple automatic detection radars, correlates the location of the targets and tracks the target accurately. The SYS-2 also will notify either radar if the other has a target and/or jamming/clutter present. Various minor modifications have also been made to the remainder of the combat system.

QUESTION: How much of an improvement will the new SPS-48E radar be over the SPS-48C?

ANSWER: Among the most significant improvements of the SPS-48E in comparison with the SPS-48C radar are: a significant reduction in antenna sidelobes, [deleted] the average output power, and [deleted.] In the projected jamming environment, these performance improvements will provide approximately (d) times the detection capability against the expected threat.

QUESTION: The Navy is also proposing development of the SPS-49 upspot. What additional detection capability will the SPS-49 upspot provide?

ANSWER: The proposed upspot will elevate the main power lobe of radiated energy up to [deleted] degrees above the horizon. This will provide two distinct improvements: reduce susceptibility to standoff jamming and increase high altitude surveillance capability.

The combined effect of this improvement will be to substantially improve the ability to detect and track very high altitude (over (d)) targets in the presence of expected jamming levels.

QUESTION: It is the understanding of the Committee that the Navy has conducted at sea testing with the NTU, and SM-1 and SM-2 missiles. The test was designed to intercept simulated Soviet cruise missiles at high altitude. Please provide for the record the classified results of these NTU and SM-1 and SM-2 tests.

ANSWER: New Threat Upgrade has only recently completed operational testing. The official results have not been released by Commander, Operational Test and Evaluation Forces. An unofficial summary of at sea testing is as follows:

- Successfully intercepted medium and high altitude targets in heavy jamming:
  - oo Mach (d) target at (d) KFT (in cruise)
  - oo Launched missile on search radar information with target at (d) KFT, Mach (d) engaged and intercepted target (in dive) after (d) degree turndown maneuver.
  - oo Multiple targets using SM-1 and SM-2 missiles simultaneously
  - oo Multiple targets using two SM-2 missiles controlled by a single Fire Control Radar.

- NTU Combat System Scorecard to Date
  - oo Using SM-1 Block V(ER) missiles:
    (d) successes; (d) failures; (d) system no test
  - oo Using TERRIER BTN missiles:
    (d) successes; (d) failures
  - oo Using SM-2 Block II(ER) missiles:
    (d) successes; (d) failures; (d) system no test

QUESTION: Given the very successful test results which the Navy has experienced with NTU and the SM-1 and SM-2 Missiles, why isn't the NTU being considered as the AAW system for the DDG 51 destroyer?

ANSWER: As stated previously, New Threat Upgrade (NTU), is an upgrade to existing combat systems. The NTU plan, which is a vital and cost-effective upgrade to some of our in-service ships, calls for modifying 1960's technology. NTU is the last logical step which extends the AAW capability of in-service combat systems and permits the extension of service life of the CG 16 and CG 26 Classes. It will contribute significantly to the fleet's AAW capability; however, NTU cannot replace AEGIS capability to combat the threats projected during the life of DDG 51.

QUESTION: What additional capabilities would the AEGIS AAW system provide over the NTU AAW Combat System? Please be specific.

ANSWER: A specific numeric comparison is very scenario dependent. The AEGIS System, compared to New Threat Upgrade (NTU) AAW Combat System, provides:

- Greater area coverage.
- Longer detection range.
- Faster reaction time.
- Higher firepower.
- More simultaneous engagements.
- Much better jamming resistance.
- Higher availability.
- Greater engageability against small and low altitude targets.

NTU is a significant AAW upgrade to allow in-service systems to cope with present threat parameters pending the arrival of an adequate number of combatants with AEGIS. NTU is markedly superior to the resident AAW capability which it upgrades, but falls short in the long term, against the projected threat, when contrasted to AEGIS' capability.

QUESTION: Was the NTU and the SM-1 and SM-2 able to successfully engage multiple targets?

ANSWER: Although operational test and evaluation of New Threat Upgrade (NTU) has recently completed, official results will not be available until mid-summer 1983. During technical evaluation, two targets were successfully engaged with two SM-1 missiles. In addition, numerous multi-target tracking runs were conducted where engagements were effected.

QUESTION: Do the search radars in the NTU system have an adaptive energy management capability similar to that in the SPY-1D system?

ANSWER: The NTU search radars in conjunction with the AN/SYS-2 Integrated Automatic Detection and Tracking System do

have an adaptive energy management capability. Unlike the SPY-1D adaptive energy management scheme, which is on a [deleted] basis, the NTU system controls on a [deleted] basis the amount of power that is directed into specific sectors in space to support specific environmental requirements.

QUESTION: Given the fact that the intercept range of SM-1 and SM-2 missiles have limitations, what is the significance of putting the AEGIS AAW Combat System upon the DDG 51, when it appears that the New Threat Upgrade system would have sufficient detection capability against Soviet cruise missiles?

ANSWER: The AEGIS system is able to deal with a much broader range of projected missile threat profiles, smaller radar cross section targets and heavy electronic jamming environments. The threat challenges all dimensions of a combat system's capability to detect, track and engage rapidly. Missile performance is bound by certain limitations regardless of the system that fires it. It is the performance of the total system that is crucial to success in an AAW engagement and the AEGIS system is superior in performance to New Threat Upgrade (NTU).

SH-60F

QUESTION: The Navy is requesting $19.7 million in fiscal year 1984 for a major system new start, the SH-60F CV helicopter. The requirement for a CV helicopter system is supposed to provide inner-zone ASW protection for the CV battle group. Is the Navy now planning to SLEP its SH-3H helicopters, and would this be sufficient to meets its inter-zone CV requirement by the end of the 1980's?

ANSWER: A full SLEP program for all existing SH-3Hs (102 aircraft) is planned - coupled with conversion of 26 SH-3Ds through the SH-3H SLEP program - however, this will allow CV helo requirements to be met only through the late 1980s. The proposed SH-60F program, which will produce an IOC of about FY-90, is essential to continue this vitally needed inner-zone ASW capability into the 1990s. The SH-3H helicopter, first built in the 1960s, is aging and the numbers available for fleet use are diminishing due mainly to material-related attrition at a rate of about three percent per year. The current inventory is sufficient for eleven operating squadrons and the necessary training and pipeline aircraft. There are currently two carrier air wings without permanent SH-3H ASW support because of this limited number of helos.

Our analysis of the SH-3H service life has identified seven single-load-path structural components which need to be replaced if the SH-3H is to continue operating into the 1990s. The currently planned Service Life Extension Program (SLEP) will replace all fatigue-limited load path components and other airframe structures showing evidence of fatigue, corrosion, and reduced reliability. The SLEP will also incorporate a bifilar rotor head absorber to reduce vibration fatigue throughout the airframe, The exact service life extension cannot be defined yet but will be determined through careful monitoring and analysis of the SLEP'ed airframes. We expect to add about 10 to 15 years of economical service to the remaining SH-3Hs. The SLEP will get underway when 26 SH-3Ds are converted to SH-3Hs beginning in fiscal year 1986. These addi-

tional SH-3H airframes will allow the Navy to form a twelfth squadron and provide for attrition until about 1989-90. The SLEP will continue with the straight SLEP of the remaining SH-3Hs starting in 1988.

Unfortunately, even with SLEP, we cannot meet our requirement for 14 active squadrons in the early 1990s and, as the SH-3H attrites, the Navy shortfall in this critical area will become more acute. We therefore need to get our SH-60F program underway as soon as possible. The SH-3H airframes which have remaining service life will be urgently needed to offset concurrent shortfalls in our shore-based search-and-rescue, logistics, and utility forces.

QUESTION: If not, why is it necessary to now begin development on a new dipping sonar helicopter?

ANSWER: The SLEP'ed H-3's cannot support more than 12 squadrons and the Navy's requirement in the early 1990's is for 14 carrier air wings, requiring 14 Helicopter Antisubmarine Squadrons (HS). By modifying the already proven SH-60B LAMPS MK III helicopter to meet our inner-zone requirements, we can get first deliveries in time to stand-up our first SH-60F squadrons in the early 1990's. To achieve this time frame, however, we must start the necessary development efforts in fiscal year 1984. Otherwise, the gaps caused by the attrition of the remaining SH-3H's, which will be over 30 years old in the 1990's, will result in carriers and carrier air wings without the services of the multimission carrier helicopters.

There is another aspect of the problem that is important. The Navy is also facing a serious medium helicopter inventory problem in the support, search and rescue (SAR), utility, and vertical replenishment (VERTREP) areas. An adequate force level of VERTREP aircraft (H-46) is only maintained by drawing from Navy and Marine Corps SAR/Utility assets. Procurement of the SH-60F to replace the SH-3H as an ASW helicopter at sea will result in the remaining SLEP'ed SH-3H's being utilized to offset the support helicopter shortfall in a less demanding shore-based environment. In summary, there is a critical shortage now and in the near term of medium helicopter assets. Requirements are increasing and normal attrition exacerbates the problem. New procurement, SLEP's and transferring of assets will all be required to solve the problems facing us in our helicopter inventory.

QUESTION: Please outline the threat that requires development of a dipping sonar CV helicopter.

ANSWER: The key is the acoustic environment. The great majority of the Navy's ASW systems are passive (listening) systems. These are very effective in open-ocean areas or at distances of 50 miles or more from a battle group. In the "inner-zone," however, machinery noises and screw noises make passive systems less effective, and it is necessary to use active (pinging) systems. This is what the CV helo does with its dipping sonar. The high mobility and rapid reaction of the helo-based system are also needed in the inner-zone, where Soviet submarines are near their weapon release points.

The Battle Group inner-zone submarine threat is one of the most difficult to counter. [deleted.] The Navy must have a system which is able to penetrate the high noise

environment of the inner-zone and find those submarines before they can target and attack our battle group forces. [Deleted]. [Deleted]. Therefore, it is critical that the Navy have a highly mobile, rapid detection and attack system operating in that high noise environment around the carrier battle group. The SH-60F with the AQS-13F active dipping sonar will provide that capability for the 1990s and into the next century.

SH-60F PERFORMANCE AND DEVELOPMENT

QUESTION. Please provide for the record the projected SH-60F performance specifications. These should include hover ceiling, maximum time on station, required fuel, gross take-off weight, mean flight hours between failure, and maintenance manhours per flight hour. Please compare the SH-60F projected performance with the actual performance history of the SH-3H.

ANSWER: The projected SH-60F performance compared to existing SH-3H performance is presented below:

	SH-60F	SH-3H
a. Hover ceiling at ASW configuration takeoff weight, 30 degrees centigrade, using military power, out-of-ground effect, with no wind	1,800 feet	Note A
b. Maximum time on-station in ASW configuration at 50 nautical miles, with 50% on-station time spent hovering, at 30 degrees centigrade, in no wind	3.5 hours (1.8 hours hovering)	3.25 hours (only 0.9 hours hovering). Note B
c. Fuel required for aircraft carrier double cycle (4.3 hours) for ASW configuration, at 30 degrees centigrade, no wind, using the standard ASW mission profile.	4,828 pounds	5,500 pounds. Note B
d. Gross take-off weight for ASW configuration (crew of four, two MK 46 torpedoes, double-deck-cycle fuel, no sonobuoys)	20,500 pounds	21,000 pounds. Note B
e. Mean flight hours between failure	1.8	0.7
f. Direct maintenance manhours per flight hour	16	28.3

Note A. The SH-3H is too heavy to hover at sea level until its weight is reduced through fuel consumption to 18,800 pounds. This is a serious limitation, as the SH-3H is thus unable to perform its primary mission for some one-and-one-half hours after normal launch. As a comparison, under the same conditions, the SH-60F will be able to hover at 21,300 pounds.

Note B. If the SH-3H is loaded with full fuel (5,500 pounds) to remain airborne for the aircraft carrier double-cycle, it will be too heavy to hover for sonar search for the first two hours of the mission. If a smaller fuel load (4,100 pounds) is carried to lighten the SH-3H so that it can hover for sonar search when it arrives on station, it will require in-flight refueling (1,600 pounds) to remain airborne for the aircraft carrier double-cycle. In-flight refueling typically costs 30 minutes of lost on-station time for the SH-3H, and the services of a ship equipped for helicopter in-flight refueling.

Additionally, the SH-60F sonar will have a higher transmitter source level and longer sonar pulse length, resulting in sonar power which is more than doubled as compared to the SH-3H, and a target echo which persists longer than the SH-3H. The SH-60F sonar receiver sensitivity will be five times greater than that of the SH-3H.

SH-60F CV Helo

QUESTION: Does the SH-60F take advantage of the successful LAMPS MK III Seahawk development and operational testing? Does this mean that there should be a less extensive SH-60F developmental and operational testing program than there was with the LAMPS MK III?

ANSWER: The SH-60F program is taking full advantage of the hundreds of hours at sea that the LAMPS MK III aircraft successfully accumulated during its extensive developmental and operational testing. The SH-60F engine and basic airframe components are identical to the LAMPS MK III. Only the mission avionics are different. This will require the independent testing agency to complete operational testing of the AQS-13F dipping sonar. However, the thousands of hours of reliability testing and the hundreds of hours of structural testing completed on the airframe and engines during the LAMPS MK III developmental testing will not have to be repeated. The planning necessary to provide supply (Integrated Logistic Support-ILS) and maintenance support, as well as the training program for the SH-60F airframe, engine and flight avionics is the same as the LAMPS MK III. This commonality will allow the Navy to reduce the amount of developmental testing considerably and the operational testing to a lesser degree because of the different operational environment and mission.

LAMPS MARK I RE-ENGINING

Last year the Appropriations conference directed the Navy to reprogram by transfer $9 million from Aircraft procurement Navy to RDT&E Navy for the purpose of funding an SH-2 product improvement program. This program would initiate the re-engining of LAMPS Mark 1 helicopter.

QUESTION: When does the Navy intend to submit the reprogramming action to Congress?

ANSWER: The Navy is assessing the program impact of the directed SH-2F re-engining prototype and is evaluating the cost effectiveness of this product improvement program initiative. Transfer of $9 million to RDT&E has not been effected, but this amount has been set aside in APN pending a decision on a final course of action. This decision is expected shortly.

QUESTION: What additional range capabilities could a re-engined LAMPS MK I provide the Navy?

ANSWER: Re-engining the SH-2F with T700 engines would increase the time on station, at the first convergence zone, from 1.9 to 2.4 hours, and [deleted] [deleted.] These conditions are related to the Anti-Submarine Warfare mission with the aircraft carrying one MK 46 torpedo.

MARK 92 FIRE CONTROL SYSTEM UPGRADE

QUESTION: Is the Navy convinced that the Phased III Upgrade of the Mark 92 Fire Control System is the most cost effective means by which to achieve a gain in overall military capability of the Mark 92 Fire Control System?

ANSWER: The evaluation of the phased array development proposal as submitted by Sperry Corporation on 23 Feb 83 has not

been completed. A quick look at the proposed cost of the system indicates total development cost will be over $200 million and production cost will be over $30 million for each unit. As a result, the Navy is concerned that the addition of a four-faced, x-band phased array radar to the present MK 92 system may not result in an increased military capability commensurate with its projected cost.

SH-60F PERFORMANCE AND DEVELOPMENT

QUESTION: Please outline for the committee the projected R&D cost for modifying the SH-60B carrier configuration, and also provide an estimate of the total number of SH-60 carrier variants to be procured.

ANSWER:

Five Year Defense Plan

	FY 84	FY 85	FY 86	FY 87	Total
RDT&E Requirements ($ in millions)	19.7	29.4	19.6	17.1	85.8

The total SH-60F procurement is planned to be 175 units.

QUESTION: Please provide a delineation of the Navy requirement for the SH-60F CV Variant.

ANSWER: The key is the acoustic environment. The great majority of the Navy's ASW systems are passive (listening) systems. These are very effective in open-ocean areas or at distances of 50 miles or more from a battle group. However, in the "inner zone," within a few tens of miles of the battle group, machinery noises and screw noises of our ships make passive systems less effective, and it is necessary to use active (pinging) systems. This is what the CV helo does with its dipping sonar. The high mobility and rapid reaction of the helo-based system are also needed in the inner zone, where Soviet submarines are near their weapon release points.

Operational experience and multi-source analysis show that sonar equipped helicopters working within carrier battle groups' inner-zones have the best prosecution record and the highest kill probability of all platforms working in that area. The threat of Soviet submarines to the inner-zone in all of the world's oceans will increase in the next decade.

The current CV ASW helicopter, the SH-3H, will be unable to meet fleet requirements beyond the late 1980's, even with a planned Service Life Extension Program (SLEP). The SH-60F, a variant of the highly successful SH-60B (LAMPS MK III helicopter) will cover the entire spectrum of essential carrier helicopter requirements including ASW, search and rescue (SAR), and logistics. The SH-60F is a low risk development which offers economy of scale returns in SH-60B/SH-60F production and huge reliability and maintainability savings over the SH-3H with its 1960's technology. Once the SH-60F is introduced, those SH-3H's which have remaining service life will be used to fill critical shortages in shore-based SAR, logistic support, and utility forces.

MARK 92 FIRE CONTROL SYSTEM UPGRADE

QUESTION: The Navy has added $21.5 million to continue R&D on the phase three upgrade of the MK 92 Fire Control System. This project would provide for the deployment of a phase to phase radar in combination with a MK 92 Fire Control System on the FFG-7.

The Navy has not budgeted for this program in previous years, but, has complied with Congressional direction to continue the upgrade program. What is the status of the Modular Integrated Radar System, MIRS Program, which would provide this significant increase in combat capability over the phase to phase radar for the MK 92 Fire Control System?

ANSWER: The development cost of the congressionally directed four-faced, x-band phased array radar upgrade to the MK 92 Fire Control System, projected to be over $200 million, precludes continuing with the MIRS Program at any significant level of effort. The Navy is considering advanced development of a MIRS-like system with minimal funding in FY 1985. This will lay the foundation for a future radar on small to medium sized combatants.

DEFENSE NUCLEAR AGENCY

DNA FY 84 Activities

QUESTION

Please provide a brief descripton of the FY 1984 activities for each of the following Defense Nuclear Agency projects: (1) Underground nuclear tests; (2) Nuclear effects on electronics; (3) Effects simulation using simulators, high explosives, and natural disturbances.

ANSWER: (1) Underground Nuclear Tests.

There will be two underground nuclear tests in FY 1984, MIDAS MYTH and MISTY RAIN. MIDAS MYTH has a planned readiness date of November 1983. The test consists of an 800 foot line-of-sight pipe with an eleven foot diameter main test chamber and a scatterer and tank for a system generated electromagnetic pulse experiment. The primary purpose of the test is to provide hardness validation and survivability data on the [deleted] for the (d) system. In addition the test supports phenomenology experiments for advanced systems. MISTY RAIN has a planned readiness date of June 1984. The test consists of a 900 foot line-of-sight pipe with a thirteen foot diameter main test chamber. In addition there will be a scatterer station at 1200 feet for a major satellite experiment. There are two primary experiments on MISTY RAIN. The first is the second in a series of three tests to validate the [deleted] hardness and the second is to obtain data on the response of satellite electronics in a radiation environment. There are also a number of basic pheomenology experiments in support of advanced systems.

(2) Nuclear Effects on Electronics.

a. Radiation Hardening of Electronics. Emphasis will continue in the five major project areas: (1) improved radiation hardening of memory and microprocessor devices; (2) research into the physics of radiation response of electronic devices; (3) developing methods of preventing single event upset; (4) continued support of the very high speed integrated circuits (VHSIC) program and preparation for VHSIC Phase II; (5) development of hardness assurance procedures for incorporation into the Military Standard Procurement System.

b. Electromagnetic Pulse (EMP). Data from the 1983 [deleted] design validation tests will be reduced and evaluated. Preparation will begin for full-scale validation tests of [deleted.] Higher energy, threat-level source region EMP (SREMP) simulators will be designed. General guidelines for hardening ground mobile systems and ships will be formulated. Development of improved tools for simulating tactical EMP environments will begin.

c. System Generated EMP (SGEMP). Planning for (d) system-level tests and [deleted] tests based on past underground tests (UGTs) and simulator experiments will be performed. [Deleted] SGEMP Test, Analysis, and Research Satellite (STARSAT) will be [deleted.] Precharged satellite response will continue to be analyzed. The writing of a satellite design handbook will commence.

(3) Effects Simulation Using Simulators.

a. Following completion of the M-X missile tests currently in progress, no major users are scheduled for the Advanced Research Electromagnetic Simulator (ARES). Unless users are scheduled, the pulser and antenna will be refurbished, and the ARES facility will be placed in standby status until the next test series is scheduled. This is a standard economy procedure when there is a gap in system testing requirements.

b. The major users of the AURORA facility will be the Harry Diamond Laboratories (tactical system generated EMP and source region EMP experiments) and a system-level ionization test on MILSTAR.

c. Major system users at CASINO are anticipated to be M-X and TRIDENT II for effects testing of inertial guidance subsets.

d. The final phase of the Joint DNA/USN/USAF Aircraft (A/C) EMP Technology Development Program will be initiated. This phase of the A/C technology joint program to develop a standardized, low-cost, technically sound aircraft EMP assessment methodology, while providing EMP vulnerability assessments of the four testbed A/C (i.e., A-7E, F-14A, FB-111A, and F/A-18), is to apply the refined vulnerability assessment methodology to the state-of-the-art, highly composite Navy F/A-18 aircraft.

e. Both the BLACKJACK 5 and PITHON laboratory radiation simulation facilities will continue to be made available to support M-X, TRIDENT and MILSTAR programs.

f. The EMPRESS II pulser design will be finalized and the first pulser designed for the Navy.

g. DNA has developed simulators to test DoD satellite radio links in simulated high altitude nuclear environments. Specifically, the impacts of concern are scintillations, absorption, and total electron content effects. Present simulators test a specific set of conditions for each test. By FY 85 simulators under development will be capable of dyamically changing radio link conditions as a function of time after nuclear bursts. Several DoD systems will be tested with these simulators.

h. DNA will continue to use the DNA triservice thermal flash facility and the thermal radiation simulator to test the response of advanced composite material aircraft structures to simulated thermal nuclear effects.

(4) Effects Simulation Using High Explosives.

Efforts will be in two major areas. First we will be analyzing results from our DIRECT COURSE (September 1983) event. As this test will be the first height-of-burst (HOB) event with a 1 kiloton nuclear airblast equivalence, a detailed results review will be required to see if any modifications/improvements are needed prior to

the next HOB event. The second area will involve final preparation for our FY 1985 test "MINOR SCALE". As this event is scheduled to be an [deleted] and the largest we have ever detonated previously has been a 1 kiloton equivalency, a detailed testbed operations plan and layout must be prepared well in advance.

(5) Effects Simulation Using Natural Disturbances.

The high latitude ionosphere, perturbed by solar disturbances, is an effective laboratory to investigate the effects of nuclear explosions on the propagation of radio signals [deleted] [deleted.] The Defense Nuclear Agency's HiLat Satellite, to be launched in June 1983, will provide a long term capability to investigate the physical processes thought to influence the evolution of nuclear disturbed ionospheres. Radar and rocket probes will provide complimentary data which will be used to confirm and impove theoretical models of high latitude plasma structuring processes. The objective is to predict the performance of C^3/radar systems in these structured environments and to mitigate any degradations. Space and missile defense requirements necessitate high spectral resolution information on [deleted] stimulated by upper atmospheric nuclear detonations. [Deleted] [deleted.] An earthlimb viewing rocketborne auroral experiment will measure stimulated atmospheric [deleted.] A companion experiment will be readied for a FY 1985 [deleted.] An engineering test of a [deleted] [deleted.] Nuclear induced atmospheric processes and weapons debris are predicted to create a long lived potentially deleterious [deleted] [deleted] must operate.

FY 84 Underground Nuclear Tests

QUESTION

Please provide a listing of all underground nuclear tests to be conducted in FY 1984.

ANSWER

DNA is currently planning to conduct two major underground nuclear tests in FY 1984. The first is MIDAS MYTH, a horizontal line-of-sight effects test scheduled for November 1983. The second is MISTY RAIN, another horizontal line-of-sight effects test scheduled for June 1984.

M-X Activities

QUESTION

Please provide a listing and justification for all DNA activities relating to the M-X missile program.

ANSWER

DNA support of the M-X program in the mechanical weapons effects and structural hardening areas falls into four general categories: airblast, dust, cratering/ground shock, and structural response. While there are M-X specified aspects to these programs, they are, to a larger degree, basic technology development efforts of significance

to a large set of systems applications. The main thrusts in each of the four categories are summarized below.

a. Airblast. DNA's airblast program deals mainly with the high overpressure phenomenology and, most recently, with overpressure in excess of 10,000 pounds per square inch (psi). At these extremely high pressures, the complexity of the shock geometry (particularly for height-of-burst explosions) requires entirely new computational prediction techniques. Moreover, we have come to recognize that the surface soil material that is either vaporized or swept up as particulate matter close-in to ground zero plays an important role in defining the dowstream airblast environments and loadings on structures. Hence, we are adding sophisticated radiation transport and multiphase flow physics to our calculational models. Emphasis on calculational techniques is essential, as this high pressure regime is not readily amenable to experimentation. Thus, to validate our theoretical models, we are conducting experiments on the upcoming MINI JADE nuclear cavity shot which, for very early times, simulates free surface conditions near ground zero. Overpressure environments between 100 and 1000 psi continue to be investigated using high explosive simulation techniques. Since airblast is the dominant mechanism for loading the ground surface, it plays an important role in the cratering process and in ground shock generation. an improved understanding of the high overpressure airblast environment is essential for resolving uncertainties remaining in the cratering and close-in ground shock environment and to establish survivability requirements for all future hardened systems. Major applications currently are for superhard silo design and hard target vulnerability assessment.

Another area of intensive research is the multiple burst environment. Shock waves from closely-spaced near-simultaneous detonations can result in highly nonlinear addition effects, affecting the survivability of systems that must operate in such environments. We have conducted both small- and large-scale high explosive multiburst simulations in support of past M-X basing concepts. At present, we are developing improved 3-D calculational techniques to investigate complex, asymmetric, and non-simultaneous multiburst scenarios. This work has been critically important to essentially all past ICBM and Ballistic Missile Defense concepts. Future such system concepts will undoubtedly pose additional requirements for multiburst information.

b. Dust. DNA has embarked on an ambitious dust cloud research program focused primarily on improving our understanding of the early-time ejecta and dust sweep-up mechanism. The presence of dust in the flowfield can dramatically affect the thermal and mechanical loading of structures. At later times, dust is swept up to form a large, high altitude cloud which can affect the fly-out of missiles, the fly-in of reentry vehicles and the operation of strategic aircraft. A significant milestone in the DNA dust program is the 1 KT high explosive simulation event, DIRECT COURSE, scheduled for September 1983. This first-of-a-kind test will provide essential data on enhanced surface scouring effects associated with height-of-burst flowfields. Dust inflow models developed on the basis of these data will be used to improve theoretical prediction models involving multiphase flows. DNA continues to receive requests for dust information for numerous targeting and hardening applications. The dust environment is expected to become increasingly important for applications involving aircraft and cruise missile engine dust ingestion, ICBM shroud hardening, reentry vehicle nosetip design, and radar propagation.

c. Cratering/Ground Shock. Because of a persistent discrepancy between the high yield nuclear cratering data base and first-

principle calculations, DNA has adopted a largely experimental approach involving both underground nuclear cavity tests and a sophisticated high explosive simulation of the cratering process known as CARES (Cratering and Related Effects Simulation). Because of the urgent requirements for cratering and related ground shock data posed by both the M-X deep basing and closely spaced basing concepts, this program was significantly accelerated using Air Force M-X funding. We are also conducting an intensive material properties development program to investigate the constitutive behavior of geologic material at high stress levels.

d. Structural Response. The Defense Nuclear Agency conducts joint technology research programs on the structural response of strategic systems to nuclear weapons effects with application to the design of superhard silos for M-X basing [deleted] [deleted.] DNA's role has been to develop test techniques and instrumentation capabilities for designing appropriate simulations and to conduct field tests on scaled missile silos and to develop analytical techniques to aid in evaluating the results. We expect this program to continue on its correct path to meet future targeting and system design requirements.

DNA activities in the EMP and radiation effects areas that can be related to the M-X program are all part of continuing DNA programs to increase the nuclear survivability of ballistic missiles and associated basing modes. DNA activities in these areas that are directed to specific M-X problems have been funded by the Air Force Ballistic Missile Office and are further defined below.

a. Electromagnetic Pulse (EMP). Validation tests of the [deleted] to both high-altitude EMP and other source region EMP (SREMP) effects are being conducted. Validation of baseline (d) power line and communications antenna designs are being accomplished to support a June 1983 basing system design review. DNA's role in these tests is to provide the testing facilities and personnel to support these tests by the Air Force. The high-altitude EMP and SREMP test is essential in determining the susceptibility of strategic missiles to EMP as they travel through the atmosphere. The power line and communications antenna design validation tests are essential in bounding the problem of SGEMP effects coupling to long and short underground cable lines. The results of both these programs are being integrated into DNA's broader programs to address ballistic missile survivability.

b. System Generated EMP (SGEMP). [Deleted] [deleted] with Air Force funding. This test is the final verification test of previous data taken from above ground tests (AGT).

In the underground nuclear test area two tests in FY 1984 support the [deleted] program. MIDAS MYTH (November 1983) has as its primary purpose the determination of hardness validation and survivability data on the [deleted] MISTY RAIN scheduled for June 1984 is the second of three UGT's primarily oriented toward the development and nuclear hardness verification of the [deleted.]

M-X Termination Input

QUESTION

Should the M-X program be terminated, would DNA still have to conduct these nuclear activities?

ANSWER

The four categories in the mechanical effects area are affected as follows.

a. Airblast. Essentially all efforts would continue even without M-X. However, DNA would expect to be doing fewer production mode calculations and place a greater emphasis on developing improved 3-D calculational techniques.

b. Dust. The current dust program is applicable to numerous targeting and hardening applications. Termination of the M-X program may again effect the nature and number of production calculations but it would not change our present research objectives.

c. Cratering/Ground Shock. The current approach in the cratering program was established prior to any mention of any specific requirements. M-X has affected the choice of geology for the Cratering and Related Effects Simulation (CARES) and it would likely change again should M-X be terminated. However, the basic thrust in this research program would remain the same.

d. Structural Response. DNA expects this program to continue on its current path to meet future targeting and system design requirements.

Although some of the DNA EMP and radiation effects research efforts are M-X related, they are also applicable to other strategic missile systems such as TRIDENT. The majority of the efforts that were strictly solving M-X problems have been accomplished prior to FY 1984 and were paid for by the Ballistic Missile Office. The present work, funded by DNA, is applicable to strategic, tactical (Pershing) and C^3 systems and will still need to be done. It is necessary to bound the magnitude of these phenomena in order to effect the design of future strategic and tactical missile and C^3 systems.

In the underground nuclear test area, [deleted] [deleted] were discontinued, substantive requirements for underground nuclear testing would continue to exist. There is a great amount of underground testing and experimentation needed to advance our understanding of nuclear phenomenology, further the development of components for nuclear weapons, assist in the design of emerging nuclear weapons systems, i.e., the TRIDENT II, and continued research into advanced materials for future missile systems.

Impact of Comprehensive Test Ban

QUESTION

Please describe the impact that a comprehensive test ban would have on the ability of DNA and our nuclear weapons laboratories to maintain an adequate technology base in nuclear weapons research, phenomenology, analysis and nuclear weapons systems support.

ANSWER

Presently, the final proof tests for nuclear hardening of systems, and system components is the underground nuclear test (UGT). In the past, new weapons systems/system components which have been subjected to nuclear environments have continually provided information not anticipated by pre-test calculations. [Deleted] [deleted.] Additionally, a small portion of each UGT is devoted to increasing the state-of-the-art in phenomenology. In some cases such as this year's MINI JADE cratering prediction event, an entire test is devoted to phenomenology. [Deleted] [deleted.] Systems/component responses

would have to be based on calculations and laboratory testing alone, [deleted]

(d). As far as national nuclear weapons laboratories are concerned a Comprehensive Test Ban Treaty (CTBT) would severely impact all important aspects of nuclear weapon R&D. Nuclear tests are required to validate design judgments, because nuclear weapons designs depend upon empirical information and precise performance cannot be calculated from basic physical principles alone. Examples of R&D areas which would be foreclosed include [deleted] [deleted.] Certain nuclear effects simulation capabilities would also be precluded.

New requirements for nuclear weapons would become impossible to meet, except by adaptation of existing designs. Design technology would inevitably be lost in any yield regime where testing is prohibited. Without testing, weapons technology will become a work field unattractive to competent scientists and engineers. The long-range effect would be diminished knowledge and quality of the designers resulting from deterioration of the technology base and erosion of the existing cadre of knowledgeable and experienced designers. The ultimate impact will be a degradation of the capabilities in all areas of nuclear weapons R&D and the relative quality and confidence in the nuclear weapons stockpile would decline.

AIR FORCE MX MISSILE

OBLIGATED/EXPENDED IN FY 83

QUESTION: Congress provided $775 million for M-X basing last year. This money is not to be obligated for full scale engineering development until Congress approves an M-X basing mode.

How much of this $775 million will be obligated and how much will be expended in FY 1983, assuming that Congress approves M-X silo basing by June 1, 1983?

ANSWER: Of the $775 million for Peacekeeper basing, $775 million is planned to be obligated. We currently estimate that the expenditure rate for these funds will be less than 60% assuming that Congress approves M-X silo basing by June 1, 1983.

FLIGHT TESTING FUNDS

QUESTION: Answer the same question for the flight testing funds "fenced" by Congress in the FY 1983 Continuing Resolution.

ANSWER: We currently plan to exhaust all of the flight test funds originally planned for FY 83.

AF RESPONSE TO RECOMMENDATION

QUESTION: On page 22 of its report, the President's Commission on Strategic Forces recommended that the cost of the M-X program could be reduced by $1.7 billion ($ FY 1982) in FY 1984, given the recommendation to go to silo deployment.

Please outline how the Air Force intends to respond to this recommendation, and where the reductions should come (Procurement, R&D, MILCON, etc.).

ANSWER: The following FY 84 savings will be realized as a result of the recommendation to deploy Peacekeeper in existing silos.

(FY 82$ in Billions)

Appropriation	CSB Deployment	Silo Deployment	Savings
3600	3.0	1.7	1.3
3020	2.3	2.1	.2
3300	.3	.1	.2
Total	5.6	3.9	1.7

UPGRADED MM III MISSILES VS M-X

QUESTION: If we are to continue deploying ICBMs in vulnerable silos, why not utilize upgraded Minuteman III missiles instead of the M-X? Do you have cost estimates on such alternatives?

ANSWER: The acquisition cost to deploy 100 Peacekeeper missiles in Minuteman silos, which would carry 1000 highly capable warheads (700 more than we now have), will be $16.6 billion. The acquisition cost to deploy 350 improved Minuteman missiles, which would replace 1,050 current warheads with a similar number of highly capable warheads and adds no new warheads to the force, would be about $9.4 billion (cost category 4 preliminary estimates). This, however, is false economy.

We have reviewed the alternative of improving the Minuteman rather than deploying Peacekeeper (M-X) in existing silos. We found that the improved Minuteman would not resolve important deficiencies in our current forces such as aging, decreasing military capability and lack of arms-reduction leverage. Were we to improve the Minuteman guidance system with the Advanced Inertial Reference Sphere (AIRS) guidance, we would have a new guidance set on missiles that would be more than twenty years old at deployment. Without costly new improvements their reliability will deteriorate over time, resulting in less capability.

In addition, their military capability would not be adequate to provide for flexibility in dealing with changes to the Soviet threat. Due to the increased weight of AIRS over the current Minuteman guidance system, we would be required to download [deleted] if we still desired to target the southern Soviet silos. Flexibility and effectiveness could be further reduced were we to require penetration aids or the Soviets were to continue to harden their high-value targets. Moreover, due to the need to design and test a Minuteman AIRS computer and interfaces, such a deployment could not begin until very late 1988 and would not be completed until mid 1991. Finally, Soviet and allied perceptions of a Minuteman improvement rather than Peacekeeper deployment could negatively influence our prospects for arms reduction

agreements and negatively influence NATO decisions on theater nuclear modernization.

IOC FOR M-X

QUESTION: Has the date of initial operating capability for the M-X remained at December 1986, under the proposal of the Strategic Forces Commission?

ANSWER: The initial operating capability (IOC) for the Peacekeeper system deployed in existing silos near Francis E. Warren AFB is December 1986. However, delay in initiating development activities over the past six months due to Congressional restrictions has increased the risk to meet the December 1986 IOC. Original planning had called for basing approval from Congress in December 1982 which was to be followed by the initiation of an environmental impact analysis and design work starting in January 1983. In addition, the basing full scale development activities had been scheduled to start in April 1983. To insure that the December 1986 initial operating capability can be maintained, timely decisions and successful development activities must occur from now through December 1986.

MEASURES BEING TAKEN BY AF

QUESTION: Please describe the measures now being taken by the Air Force to restructure the M-X flight test schedule, following the March 16 accident when an inert M-X canister and Pathfinder missile were dropped at Vandenberg AFB, CA.

ANSWER: Following the Peacekeeper inert test missile accident at Vandenberg AFB, CA on 16 March 1983 a complete mishap investigation was conducted. Upon completion of the mishap investigation, planning and schedules required to restructure the checkout and test program in preparation for first flight were prepared. Refurbishment of the test pad is currently in progress and scheduled for completion in early June 1983. In conjunction with the refurbishment effort on the test pad, Pathfinder testing that was not completed prior to the mishap will be conducted during the month of May. Flight test missile #1 processing is ongoing and scheduled for completion in the Missile Assembly Building by early June 1983, the final step prior to moving to the test pad. Flight test missile #1 will then be moved to the test pad to undergo final checkout and preparation for flight testing upon Congressional approval.

FLIGHT TESTS IN FY 83

QUESTION: Does the Air Force intend to conduct 2 or 3 M-X flight tests in FY 1983?

ANSWER: Assuming Congressional approval of a basing mode for the Peacekeeper weapon system by 1 July 1983, two Peacekeeper flight tests will be conducted in FY 1983.

RESEARCH ON DEEP BASING

QUESTION: Is the M-X budget line funding continuing research on deep basing? Why?

ANSWER: Yes. The Department of Defense plans to continue technology development of the deep basing system through 1984. A major review of the current status and future program direction related to deep basing is scheduled for September 1983. Deep basing represents a potential, viable, and survivable basing system for the land based ICBM. A demonstration egress test has just been completed at the Nevada Test Site. This test demonstrated the capability to vertically egress from over 200 feet deep through various types of geological conditions. The continuation of the deep basing validation program and the further refinement of technology, operational concepts, and maintenance procedures will ensure that another viable basing system could be available for deployment should the technical and strategic considerations warrant.

DEEP BASING FUNDING

QUESTION: Do we now have any identified ICBM which we could deploy in this manner? Why isn't deep basing R&D funded separately from M-X R&D?

ANSWER: There are currently two missiles being considered for deployment in the deep basing concept. Both the Peacekeeper missile and the small single warhead ICBM are being evaluated for application and possible deployment in the deep basing mode. The Peacekeeper missile has the advantage of requiring less overall land area and fewer tunnels for construction. In addition, the Peacekeeper missile provides a cost effective system for the deployment of a large number of warheads. Factors in favor of the small missile include easier construction because smaller egress tunnels and equipment are required. However, the small missile requires a larger amount of area, tunnels and missiles to provide the same number of warheads as the Peacekeeper missile. A major review of the deep basing concept including the egress test which was successfully completed in April 1983 will be held in Sept 83 to review progress and focus on future validation efforts.

The R&D money for the deep basing validation program is contained within the overall M-X R&D line. However, the R&D money for deep basing is an element of the technology program that has been identified in the ICBM modernization program.

DEEP BASING TERMINATED

QUESTION: Why shouldn't all R&D in deep basing be terminated, if we have no intention of deploying an ICBM in this particular basing mode?

ANSWER: The Department of Defense plans to continue technology development of the deep basing system through 1984. A major review of the current status and future program direction related to deep basing is scheduled for September 1983. Deep basing represents a potential, viable, and survivable basing system for the land based ICBM. A demonstration

egress test has just been completed at the Nevada Test Site. This test demonstrated the capability to vertically egress from over 200 feet deep through various types of geological conditions. The continuation of the deep basing validation program and the further refinement of technology, operational concepts, and maintenance procedures will ensure that another viable basing system could be available for deployment should the technical and strategic considerations warrant.

BASING MODE CANDIDATES

QUESTION: The commission has also recommended initiation of development of a small, single warhead ICBM, and basing R&D, for an initial operating capability of 1993. What are the basing mode candidates for the small ICBM?

ANSWER: Basing mode candidates for the small ICBM include: two road mobile options, one that is not protected against effects of nuclear overpressures and one that has some degree of protection; silo basing in superhardened silos; and a deep basing mode.

DEVELOPMENT PATH FOR SMALL ICBM

QUESTION: What development path would we pursue with respect to the small ICBM? Would we initiate a totally new program, or would it be feasible to say, add a third-stage to the Pershing II, and save on R&D costs in the process?

ANSWER: The Air Force's Ballistic Missile Office at Norton AFB, CA would request proposals from aerospace contractors to conduct a technology validation program on a small, single RV ICBM. From those who submitted proposals, it is likely that two contractors will be selected to design a small missile.

Officials of Martin-Marietta Corp advise that they would initiate a new R&D program if they were selected to build the small ICBM. Adding a third stage to the Pershing II missile will not provide the range and throw weight desired of the small ICBM. However, Martin-Marietta advises that their technical and management experience gained from the Pershing II program would be used in developing an efficient R&D program.

SMALL ICBM BASING MODE

QUESTION: Will small ICBM basing be funded within the small ICBM R&D program?

ANSWER: The President's recommendation on Strategic Forces included four areas of study within the follow-on ICBM technology development program. All four (small ICBM, mobility, hardness, deep basing) will be funded through the Peacekeeper program element.

TOTAL ACQUISITION PROGRAM COSTING

QUESTION: Do we now have any firm idea as to our ultimate inventory objective for the small ICBM? Please provide a total acquisition program costing for the following deployments:

-- 200 missiles.
-- 500 missiles.
-- 1000 missiles.

ANSWER: The President's Commission on Strategic Forces recommended that the Air Force commence engineering design of a small, single warhead ICBM. The president has concurred with this recommendation and added "If strategic and technical considerations warrant, such a missile could be ready for full-scale development in 1987 and potential deployment in the early 1990's." Until a technological validation program is complete, and the feasibility of such a missile is determined, ultimate inventory objectives for such a system can not be finalized.

Regarding acquisition program costing for requested deployments, the following Category IV, Preliminary Estimates are provided for a small ICBM in a "soft" road mobile deployment.

200 missiles - $17.1 Billion (FY 82$)
500 missiles - $25.5 Billion "
1000 missiles- $38.2 Billion "

ACCOMPLISHMENTS WITHIN ASMS PROGRAM

QUESTION: Please provide for the record the extent of the work done to date on small ICBM missile and basing studies and concepts accomplished within the Advanced Strategic Missile Systems (ASMS) program.

ANSWER: Since fiscal year 1981, the Advanced Strategic Missile Systems (ASMS) program office at the Air Force Systems Command's Ballistic Missile Office (BMO) has been conducting low level studies to define the critical technology tasks essential to development of an advanced small ICBM. Under the sponsorship of the program office, Boeing and General Dynamics/Convair have each completed over half of planned $1.3 million efforts to define such advanced missile technologies.

These studies are emphasizing designs and missile subsystems most compatible with multi-mode basing. Areas of study include first order missile concept definitions, ballistic and maneuvering reentry vehicle payload options, performance trade-offs, advanced propulsion design features for reduced size and weight, dormant and semi-dormant ring laser gyro guidance systems, mid-course and terminal area guidance update options, nuclear hardening of transporters, C^3 connectivity, and physical safety and security for mobile basing. A broad range of basing modes are being assessed, but only in sufficient depth, at this time, to determine compatibility between basing modes and missile characteristics (e.g., mobile basing which calls for rugged, fast reacting guidance and navigation systems). Basing modes considered include silo and ground mobile (both with standard and enhanced nuclear effects protection), air launched and air transportable modes.

Some laboratory testing and subscale flight testing have been conducted to support development of advanced dormant guidance systems, advanced propulsion, etc. However, more advanced development is needed before a small missile and basing mode can be pursued in engineering development with any confidence of achieving the required weapon system performance. A substantial

program to accomplish this advanced development is being planned by the Air Force.

ADVANCED TECHNOLOGY WORK

QUESTION: What advanced technology work will have to be performed on the small ICBM prior to making a 1987 decision to enter full scale engineering development?

ANSWER: The technology validation program for the small ICBM is not yet finalized. Preliminary estimates indicate that this program would require new developments for extendable nozzle exit cone technology (for a small missile), studies of the impact and feasibility of weight reduction, accuracy of a missile in a mobile environment, mobile transporter hardness, and responsive command and control.

ESTIMATE OF PROJECTED R&D FUNDING

QUESTION: Provide an estimate of the projected R&D funding required to develop a small ICBM. Please put your answer in both constant FY 1984 and current, then-year dollars.

ANSWER: We currently estimate that development of a small ICBM and mobile basing mode would cost approximately $8.8 billion of FY 84 constant dollars. Based on current inflation rates this would be approximately $11.0 billion in then year dollars. This is cost category IV which is based upon preliminary estimates.

POTENTIAL SMALL ICBM COSTS

QUESTION: The following cost estimates for the small ICBM were provided to the subcommittee last year. They assume a procurement of 1,000 and 10 year operations and support costs.

Research and Development	7-10
Procurement (Missile and Mobile Elements)	18-22
10 Year Operation and Support	27-32
Subtotal 10 Year Cost (FY 1982)	52-64

Costs of military construction facilites and secure mobile C^3 system have not been included.

The Air Force preliminary cost estimate given to the subcommittee last year was described as having a "high degree of uncertainty."

Do you have any better certainty as to potential small ICBM costs than those given to the subcommittee last year?

ANSWER: The Strategic Forces Technical Assessment, dated 31 March 1983, published by the Department of Defense estimated the costs for the small "soft" road mobile ICBM as follows:

	(FY 82 $)
R&D	$8.0 billion
Procurement	25.4 billion
MCP	4.8 billion
10 Year O&S	27.4 billion
Total 10 year life cycle cost	$65.6 billion

Those estimates still contain a degree of uncertainty, as this missile system is still in the earliest conceptual stages of design. These cost estimates are Category IV, Preliminary Estimates. Funding estimates will be further defined upon the culmination of validation studies to determine the design concept, operation, and feasibility of such a system.

MANPOWER REQUIREMENTS

QUESTION: Assuming that the small ICBM would be deployed in a mobile mode, how many people would be required to operate the convoy? Assume that each convoy requires:

-- a missile erector
-- a launch vehicle
-- a warhead transport vehicle
-- a communications and support vehicle
-- security vehicles
-- area quick response helicopter teams.

How many additional personnel would be required for

-- a 200 missile convoy force
-- a 500 missile convoy force
-- a 1000 missile convoy force.

ANSWER: At the present time there is no approved concept of deployment for the small ICBM. The President's Commission on Strategic Forces recommended initiation of engineering design of a single warhead ICBM with applicability to multiple basing modes. A formal validation to execute these recommendations will not be conducted until they are approved by the Congress.

For the above listed assumptions, the following total personnel estimates are provided:

- 200 missile convoy force - approximately 15,000
- 500 missile convoy force - approximately 36,000
- 1000 missile convoy force - approximately 71,000

It must be emphasized that these estimates assume a concept of "soft" transporter, separated warheads, and duplicative vehicles (launch vehicle and comm van). This concept has not been proposed, validated, or supported by the Air Force. Realistic manpower estimates for a small mobile ICBM cannot be calculated with any degree of certainty until an acceptable design concept and operations concept is baselined.

ARMS CONTROL IMPLICATIONS

QUESTION: Last year Congress restricted the obligation of flight test funds for the MX missile until Congress approved a plan to deploy the MX. Concern was expressed in the floor debate that

flight testing the MX would be committing the US to that one missile, since the SALT II Treaty permits test and deployment of only one "new type" ICBM.

Now the President's Commission on Strategic Forces has recommended deployment of the MX in silos and development of a small ICBM. Since the Administration has openly agreed to abide by the terms of the SALT II Treaty, does this mean that our interpretation of the treaty's flight test restrictions would permit us to flight test both the MX and eventually the small ICBM? Or have we decided to abandon adherence to the flight test restrictions since the Soviets have flight-tested two new ICBMs?

ANSWER: Our decision is to deploy one new ICBM-Peacekeeper beginning late in 1986. We will also conduct research and development of a potential follow-on missile which could be deployed in the 1990's. This is fully consistent with our policy of not undercutting existing arms control agreements since there will be no need to make a decision on deployment or even flight testing of any new missile developed in this program until the late 1980's. Moreover, this administration will make every effort to achieve a new START agreement before that time which will provide a more stable strategic balance at lower levels of deployment.

AIR FORCE OPERATION AND MAINTENANCE

INCREASE FOR SR-71

QUESTION: Please provide specific details of $10.9 million increase for SR-71 contract logistic support.

ANSWER: The $10.9 million increase in SR-71 contractor logistics support provides for required additive levels of Pratt & Whitney J-58 engine ($4.2M) and constant speed drive system ($1.2M) overhaul/repair (deleted).

The $4.2 million and $1.2 million are required to support increase levels of engine/constant speed drive overhaul and repair activities (deleted). Essentially, the J-58 engine has reached a point in its service life where a normal depot overhaul now approximates an engine remanufacture. Increased severity of flight operations has also necessitated an attendant requirement to overhaul and/or replace a majority of engine accessories. These additional funds will prevent a shortage of operationally ready engines in FY84.

Additional detail and justification on the $5.5 million is controlled within compartmentalized intelligence channels and has previously been provided to the House Permanent Select Committee on Intelligence Staff.

B-52 WEAPONS SYSTEM TRAINERS

Question. Provide a funding breakout by year and appropriation account for all costs associated with the ten B-52 weapons system trainers.

Answer.

(Cost in Millions)

	Prior Years	82	83	84
3010	$284.2	101.8		
3300	15.4	10.6	3.0	
3400			3.0	6.6
3500		.9	3.5	7.1
3600	19.5	2.2	0.5	4.7

QUESTION: In what accounts are the transportation costs for the B-52 Weapon System Trainers budgeted? Have the estimated transportation costs changed as a result of location changes in the delivery schedule?

ANSWER: Transportation costs for the B-52 Weapon System Trainers are budgeted in appropriation account 3010, Aircraft Procurement. Transportation cost has increased approximately $20,000 as a result of location changes in the delivery schedule.

IMPROVE SKILLS OF PERSONNEL

QUESTION: The Congress is consistently reminded that the B-52 fleet is aging. Considering the wealth of experience which has been attained over the years in operating these aircraft, why is an additional $1 million required to improve the skills of personnel responsible for the operation and maintenance of the aircraft?

ANSWER: The primary purpose of Contract Field Service (CFS) is to provide on-site proficiency training, technical guidance and instruction in the solution of unusual field problems and render responsive technical advice related specifically to weapon systems and equipment. CFS support fills the maintenance gap when highly technical, state-of-the-art equipment comes into our inventory. The CFS personnel train our blue suiters until they reach the level of self-sufficiency, at which time the CFS contract is terminated. In the specific case of the B-52, CFS support will be required for two new, highly technical systems coming on line in late FY83/early FY84. These new systems are the AN/ASQ-176, a test set used in the maintenance shops to trouble shoot the offensive avionics system/ALCM interface and the support center system at Castle AFB which will support software development for B-52 weapons system trainers and for off-station mission trainers.

UPGRADE OF REFUELING TRAINER PROGRAMS

QUESTION: Considering the extended operating time for strategic aircraft, why is it necessary to spend $2.5 million to upgrade refueling trainer programs?

ANSWER: The flying time allotted to our bomber and tanker force to train for their primary mission has shown no significant increase over the past several years. These trainers allow crew members to devote more time inflight to refine crew procedures, to fine-tune their flying skills, and they eliminate the requirement for some inflight training during initial aircrew qualification. Present refueling trainers are quickly becoming non-supportable. This upgrade will keep these trainers viable for an additional 15 years. Cost is another factor. Training obtained on these trainers is substantially cheaper than actual in-flight time. We can improve our crew members' skills at a much lower cost.

DECLINE IN MISSION CAPABLE RATE

QUESTION: The Air Force attributes a decline in the projected FY 1984 mission capable rate for the B-52 aircraft due to lack of funding of WRSK kits and stock fund shortfalls. Accepting the premise that stock fund shortfalls have contributed to this decline, why is the matter of WRSK kit funding relevant in view of their designated wartime objective?

ANSWER: In addition to the traditional strategic role, some B-52Gs have conventional wartime taskings which require WRSK kits. Wartime assets are considered in projecting mission capable rates. Therefore, WRSK kit shortfalls impact mission capable rate projections.

Nature of Increase

QUESTION: Please explain the nature of the $4.6 million increase for contract price changes.

ANSWER: The term "contract price changes" is used to denote inflation costs based on application of the OSD/OMB approved escalation factors to those expense categories that are driven by contractual agreements. In this particular case the "contract price changes" are primarily for follow-on operational, test and evaluation, service engineering, flight analysis, and SIOP software support for the Minuteman program. The $4.6 million was calculated by multiplying the OSD/OMB approved inflation indices of 5.1% times the FY83 baseline for the cited contractual programs of $89.5 million. Computation is $89.5 million x 5.1% equals $4.6 million.

INCREASE FOR CONTRACT PRICE CHANGES

QUESTION: Please explain the $10.5 million increase for contract price changes.

ANSWER: The term "contract price increases" is used to denote inflation costs based on application of the OSD/OMB approved escalation factors to those expense categories that are driven by contractual agreements. In this particular case the "contract price changes" are primarily for the purchase of non-stock funded materials, facility maintenance by contract, and others such as food service contracts. The $10.5 million was calculated by multiplying the OSD/OMB approved inflation indices of 5.1% times the FY 83 baseline for the cited contractual programs of $205.9 million. Computation is $205.9 million x 5.1% equals $10.5 million.

FACILITY PROJECTS VS FACILITY MAINTENANCE AND REPAIR

Question. Please explain the difference between the $20.6 million increase for facility projects as opposed to the $14.9 million increase for facility maintenance and repair.

Answer. The $20.6 million for MFPI (Strategic Offensive) contract projects supports new, or increased, requirements, e.g. a CINCSAC program to modernize existing unaccompanied enlisted personnel housing and alteration projects for incorporating more energy effi-

cient materials/technology in existing facilities. In addition, the $20.6 million item includes increased funding for Architect-Engineer design services to support the increased contractural effort associated with both this item (h) and item m. The $14.9 million (item m) is requested to accomplish additional facility maintenance and repair contract projects that have been deferred from prior fiscal years and are included in the Air Force's backlog of maintenance and repair.

FURTHER DETAIL FOR INCREASE

QUESTION: The rationale for the increase of $2.6 million for civil engineering supplies and equipment to "keep inhouse work force productive" is inadequate. Please provide further detail for this increase.

ANSWER: The increase of $2.6M from FY 83 to FY 84 is absolutely necessary and can be attributed to the following areas:

Growth of 164 manyears	$1.2M
Prime BEEF Contingency Support Sets	.5M
Electromagnetic Pulse Filters (EMP)	.5M
Civil Engineering Maintenance Inspection Team (CEMIRT)	.2M
Cable Replacement	.2M
Total	2.6M

The $1.2M represents an increase for supplies and equipment to support a growth of 164 manyears. The $0.5M in Prime BEEF will help fund the purchase of Contingency Support Sets for reposturing of the Prime BEEF team. $0.5M is required to purchase EMP filters in various EMP hardened facilities. Without these filters, the facilities would not be capable of continued mission support since all solid state electronic equipment would be destroyed in an EMP environment. CEMIRT requires $.2M to buy materials to upgrade generators and repair specialized utility equipment. These generators provide emergency backup power for Command Posts, security systems, airfield lighting and the mission priority areas. Underground cables at many SAC bases have exceeded their life expectancy therefore, $.2M is needed for an on-going replacement program. Critical functions such as apron lighting, weapon storage areas, command posts and hospitals would be supported.

OFFSETTING REDUCTION FOR SAVINGS

Question. An increase of $2.5 million is requested for the conversion to coal heating plants at three SAC air bases. What is the offsetting reduction for savings from lower electricity/gas usage?

Answer. The increase of $2.5 million is for inventory lay-in of coal supplies in FY 1984. There is no offsetting reduction in FY 1984 because operational conversion from oil/natural gas to coal burning heating plants will not begin until FY 1985.

ACCOUNT FOR DISCREPANCY

QUESTION: A requested increase of $3.9 million associated with new dormitory furniture is justified on the basis of new dormitories scheduled for occupancy during FY 1984. However, the performance criteria demonstrates no change in the number of officers or enlisted quarters during this period. What accounts for this discrepancy?

ANSWER: Furniture will be purchased for seven dormitories approved in the FY 1983 Military Construction Program which have a beneficial occupancy date during FY 1984. Of these seven dormitory projects, three are for the construction of new dorms and four are for the alteration of existing inadequate facilities. Of the three new dormitories, one will actually increase the enlisted quarters inventory; the other two will replace existing substandard facilities which are beyond economical repair. With this in mind, the number of enlisted quarters in FY 1984 is expected to be 32,497 which is an increase of 240 bedspaces over the FY 1983 amount. The 240 increased bedspaces were inadvertantly omitted in the push to finish the justification books.

RADARS

QUESTION: Please detail the $22.9 million increase for contract price changes?

ANSWER: OSD/OMB have recognized the historical trend for cost growth associated with selected major Air Defense Contracts and have approved continuation of the 13 percent cost growth for these contracts for FY84. Actual increases will vary slightly depending on actual estimates received from the contractor or on revised estimates received during the operating year. These contracts are given special consideration for inflation because they are impacted by employee union negotiations in Alaska, Canada, and Greenland. A clause in the contracts known as a "pass-through" clause provides that approved wage/cost of living increases will automatically be passed on to the US Air Force.

Contract base-line, amount of price growth, and percent of increase is shown below for these selected major contracts in this category:

Contract	FY83 Baseline	Percent	Amount of Price Growth
Alaska AC&W Contract	$42.7	13.0	$ 5.6
CADIN-PINETREE	51.5	13.0	6.7
BMEWS	39.3	13.0	5.1
Other Contracts/Non-SF purchases			5.5
			$22.9

If funding for inflation is not recognized, serious system degradation will take place in communication, equipment, and projects since price growth is a must-pay expense.

The FY84 PB includes $10.2 million for the Air Force's contribution to the operation and maintenance of the CADIN-PINETREE line.

The $10.2 million is equivalent to the Air Force's share to support three radar sites in the CADIN-PINETREE line during FY84. The price growth is computed using FY83 as a baseline. Therefore, based on methods in computing price growth, the $10.2 million requirement for CADIN-PINETREE in FY84 includes the $6.7 million shown as price growth and represents the Air Force's best estimate of funding required to operate three sites in FY84.

QUESTION: Provide an update of Air Force cost estimates following the 15 June 1983 meeting with the Canadians.

ANSWER: Canada requested that U.S. Air Force continue full funding support for CADIN-PINETREE for one more year. This additional year would provide time for orderly phase-out of selected sites.

Department of Defense position is that only the amount in the budget ($10.2 million) will be paid in FY84.

Joint USAF/Canada talks are continuing.

IOC FOR SEEK SKYHOOK RADAR

QUESTION: Do current estimates still support the September 30, 1983, IOC for the SEEK SKYHOOK radar? (+$3.5 million)?

ANSWER: Yes, current schedule estimates support achievement of a September 30, 1983, IOC for the SEEK SKYHOOK system at Cape Canaveral AFS, FL.

RADAR INTERFACE CONTROL EQUIPMENT

QUESTION: An increase of $5.8 million is requested for radar interface control equipment at Eglin AFB in support of the SLBM systems. It is justified on the basis that the existing equipment is not adequate to continue operations through the last quarter of FY 1985 when PAVE PAWS southeast is scheduled to become operational. At that time, will all this equipment become obsolete?

ANSWER: The increase of $5.8 million is not entirely for radar interface control equipment (RICE). Only $200 thousand of the request is for RICE. Other elements of the request are: $2.5 million for PAVE PAWS leased data processing equipment and new site acquisition support costs; $3.1 million for additional operating costs for the PARCS radar, the FPS-85 radar, and for support of the 1st Space Wing of the Air Force Space Command. When PAVE PAWS 10db Southeast site becomes operational the FPS-85 at Eglin will be deactivated but final disposition has not been determined.

OFFSETTING DECREASE FOR PERSONNEL COST AVOIDANCE

QUESTION: The upgrade of the 169th Air Control and Warning Squadron manual radar to an automated operation is the justification for a $1.8 million increase. What is the offsetting decrease for personnel cost avoidance?

ANSWER: There are no personnel reductions resulting from automation of the 169th Aircraft Control and Warning squadron. Active duty personnel levels remain constant because the squadron is manned primarily by the Hawaiian Air National Guard (ANG). ANG manpower reductions caused by automation of operator positions have been offset by increases in maintenance positions needed to maintain

the new communications electronics equipment. The net change of active duty and ANG manpower changes is zero.

AF PERSONNEL OR TRANSFER PAYMENTS

QUESTION: The justification requests an additional $1 million for an increase of 18 personnel and other operating costs to support the Joint Surveillance System. Yet, the justification material describes this increase as a "reimbursement to FAA." Is the $1 million for Air Force personnel or transfer payments?

ANSWER: The $1 million is a payment to FAA. The 18 personnel are FAA authorizations for radar technicians needed for maintenance of height finder radars. Under provisions of DOT/DOD(USAF) Memorandum of Agreement NAT-614, the US Air Force is required to pay for this requirement.

RATIONALE FOR OTHER $32 MILLION INCREASE

QUESTION: The sub-activity breakout for the Joint Surveillance System demonstrates an increase of over $60 million since FY 1982, with an increase of over $35 million in FY 1984 alone. However, barely $2.7 million of this increase is described in the descriptive summary section of the justification material. What is the rationale for the other $32 million increase?

ANSWER: The increase for the Joint Surveillance System (JSS) of over $60 million from FY 1982 to FY 1984 is primarily the result of a "bookkeeping" adjustment. The JSS is the successor program to the Surveillance Radars program. Modernization of the radars and joint use agreement with the FAA evolved as the JSS. The Alaska Aircraft Control and Warning (AC&W) radars have been in process of converting to the JSS. In FY 1983 one-half of the AC&W program is included in the JSS (PE 12325) and the other half is in the Surveillance radar program (PE 12411). In FY 1984 the entire Alaska AC&W program of $45 million is reflected in the JSS, of which $23 million was transferred from surveillance radars.

The $2.7 million increase referred to in the question covers only a portion of the increase of JSS; $1.7 million for ADPE support and $1 million for reimbursement to FAA. Other increases to JSS which should be considered are: Seek Sky Hook ($35.5), Hawaiian ROCC ($1.8), civilian personnel ($.9), and $3.8 included as part of the $22.9 "Contract Price Changes."

Reconciliation of the JSS program from FY 1982 follows ($ in millions):

FY 1982		$19.6
- Civilian personnel adjust	+ .9	
- Alaska AC&W contract - wage adjustment	+ 2.3	
- AC&W contract - transfer from radars (PE 12411)	+ 22.0	
		+ 25.2
FY 1983		$44.8
- AC&W contract - transfer balance from radars (PE 12411)	+ 23.0	
- Seek Sky Hook	+ 3.5	
- Hawaiian ROCC	+ 1.8	
- ADPE Support - JSS	+ 1.7	
- Reimbursement to FAA	+ 1.0	
- Civilian Pay Adjust	+ .9	
- Price Growth (Contract Price Changes)	+ 3.8	
		+ 35.7
FY 1984		$80.5

DEW LINE/CADIN-PINETREE RADAR SYSTEM

QUESTION: The justification material demonstrates a decrease of $48.6 million resulting from the phase-out of twenty-one CADIN-PINETREE radar sites. Memorandum in support of the pending RDT&E reprogramming for DEW Line upgrades state a savings of $56 million in the FY84 program attendant to the phase-out of the twenty-one stations. Where is the additional savings of $7.4 million reflected in the budget material?

ANSWER: The $48.6 million decrease reflected in the FY 1984 PB was based on FY 1983 program of $51.5 million. This FY 1983 program ($51.5) is understated by $7.1 million as a result of must-pay billings from the Canadian government. This is why the $7.1 million is being included in an FY 1983 reprogramming request. Assuming an FY 1983 program of $58.6 million ($51.5 + $7.1), the savings in FY 1984 as compared to FY 1983 will be approximately $56 million. This is further substantiated by OSD Program Decision Memorandum of Aug 1982 reducing the then programmed FY84 CADIN-PINETREE O&M funds by $56.0 million.

To summarize, when comparing FY84 requirements to the underfunded FY83 estimate, the savings are $48.6 million. However, from the previous FY84 baseline estimate or a fully funded FY83 amount, the savings is $56 million. The Air Force did lose $56 million in FY84 TOA due to the phase-out.

PROVIDE CURRENT ANNUAL OPERATING COST FOR REGIONAL CONTROL CENTERS

QUESTION: In FY 1983 and 1984 the Air Force plans to cease operations at five region control centers. Please provide the current annual operating cost for each of these region control centers.

ANSWER: Current (FY 1983) annual operation and maintenance costs for the Region Control Centers is as follows: ($ in Thousands)

Ft. Lee, VA	$532
Hancock, NY	360
McChord, CA	390
Malmstrom, MT	246
Luke, AZ	768
Total	$2,296

Dollars remaining in FY 1984 ($933 thousand) are required to support the Hancock and Luke RCCs which will not phase out until the latter part of FY 1984.

SATELLITES

QUESTION: Please explain the $6.4 million increase for contract price changes.

ANSWER: The term "contract price changes" is used to denote inflation costs based on application of the OSD/OMB approved escalation factors to those expense categories that are driven by contractual agreements. In this particular case the "contract price changes" are for contract maintenance of the various SPACETRACK and Defense Support program systems equipments. The $6.4 million was calculated by multiplying the OSD/OMB approved inflation indices of 5.1% times the FY83 baseline for the cited contractual programs of $126.2 million. Computation is $126.2 million x 5.1% equals $6.4 million.

REQUIREMENT FOR INCREASES

QUESTION: With the exception of the addition of two new mobile ground terminals, the number of program stations is stagnant yet an additional 15 percent in personnel and budget expenses is requested to continue the same level of operations. Why are these increases required?

ANSWER: Most of the personnel increases are associated with the mobile ground terminals; however, some additional personnel are required at the current program stations to support the increased capability and complexity of the new sensor evolutionary development satellites. The mobile ground terminal personnel are required for the main operating base, crews for the two mobile ground terminals delivered in FY 1984 and crews for the first FY 1985 mobile ground terminal. These latter crews are required near the end of FY 1984 to start their training in preparation for deployment of the first FY 1985 mobile ground terminal.

INCREASE OF PERSONNEL FOR DEFENSIVE OPERATIONS

QUESTION: What accounts for the increase of 379 enlisted personnel for other defensive operations in view of the direct one-for-one swapout of F-106 aircraft for F-15 aircraft?

ANSWER: In combat force structure the one-for-one swapout of 18 F-106s for F-15s required an additional 72 spaces for aircraft maintenance. In the training force structure there was not a one-for-one swapout; rather 10 F-106s were deleted and 18 F-15s were added, adding 272 spaces for aircraft maintenance. These force structure changes account for +344. Miscellaneous program actions to include the critical military skills program (conversion of civilian authorizations to military in skills where the Air Force has a current wartime shortfall) account for the remaining +35.

PERSONNEL INCREASE FOR "CONTRACT CANDIDATE REINSTATEMENT"

QUESTION: Please explain the increase of 48 personnel for "contract candidate reinstatement."

ANSWER: Functions identified for cost comparison studies leading to possible conversion to contract are authorized both military and civilian personnel. Previously the Air Force removed all end strength (military and civilian) associated with the functions to be studied. Consistent with Congressional direction not to remove civilian end strength in anticipation of contracting, military authorizations were also restored effective FY 84. Despite this restoration of end strength the functiors are still under active consideration for potential conversion to contract should contractor operation prove more economical. Funding for these end strengths will be needed to pay the contract if conversion takes place.

COMMUNICATIONS

QUESTION: Please explain the $4.6 million increase for "contract price changes."

ANSWER: The term "contract price changes" is used to denote

inflation costs based on application of the OSD/OMB approved escalation factors to those expense categories that are driven by contractual maintenance of equipment or contract support of systems related to telecommunications, command and control systems, i.e. World-wide Military Command and Control Systems, Communications for Defense Support Program, NORAD, Spacetrack and SLBM. The $4.6 million was calculated by multiplying the OSD/OMB approved inflation indices of 5.1% times the FY83 baseline for the cited contractual programs of $90.3 million. Computation is $90.3 million x 5.1% equals $4.6 million.

TOTAL TACTICAL AIRCRAFT FLYING HOUR

Question. Provide the FY 1982, 1983, 1984 total tactical aircraft flying hour program as average flying hours per month per pilot per aircraft for each of these fiscal years.

Answer. The following table shows the average flying hours per pilot per month for the major tactical weapons systems. The FY 1982 figures are actual, while the FY 1983 and 1984 figures are based on the President's Budget.

	1982	1983	1984
F-4	15.2	15.5	17.3
A-10	22.9	24.5	24.8
F-15	15.7	18.2	19.1
F-16	15.8	18.6	20.0
F-111	17.8	17.9	18.7

QUESTION: Provide a cost estimate associated with increasing the average flying hours per month per pilot for the tactical weapon systems from roughly 18 1/2 in FY 83 to 19 1/2 in FY 84. (NOTE: Please review answers on S-492 attached.)

ANSWER: The fuel and supplies cost estimate is $58,510,000. This represents the difference between what the cost would be to fly the FY 84 crew force at the FY 83 level and what the cost will be to fly at the FY 84 programmed levels. This estimate includes costs for all systems referenced on S-492.

ELIMINATION OF F-4 AIRCRAFT TOWING AERIAL TARGETS

QUESTION: Why is the Air Force eliminating F-4 aircraft towing aerial targets in favor of contract service? Provide comparative cost estimates for contractor services versus F-4 aircraft services.

ANSWER: The F-4 aircraft are used for tactical fighter training. Tasking F-4 units to support target towing displaces sorties required to train new aircrews and maintain combat readiness in the F-4.

F-4's are decreasing in the Tactical Air Forces (TAF), while target requirements are increasing because of F-15's and F-16's coming on line. There are not enough F-4's nor flying hours available to accomplish essential target requirements.

An example of contractor use at PACAF follows:

Average year = 630 hours (FY83)

F-4 costs (including TDY, SAMS, maintenance, flying hour costs and Av Pol - no blue suit support) = $2.8M

Contract (including all of the above plus personnel) = $2.3M

In summary, the reason for conversion to contractor is to maintain TAF mission readiness, as well as cost savings.

AF CONTINUING TO NEGOTIATE CONTRACTS

QUESTION: In view of the Administration's position to eliminate an FY 1984 civilian pay raise, why is the Air Force continuing to negotiate contracts for foreign national indirect hire civilians including pay raises?

ANSWER: There are two reasons we continue to do this. First, legislative authority for establishing compensation plans for Foreign National (FN) employees is the Foreign Service Act of 1980 (PL 96-465) which requires that rates of pay and conditions of employment will be based on prevailing rates and practices found in each country. It does not permit limiting increases by comparison to U.S. citizen employee pay raises. Secondly, even if legislation were enacted freezing foreign national pay, its implementation would place us in violation of a number of country-to-country administrative agreements or treaties. The DOD maintains military facilities in foreign areas at the invitation of, and by agreement with the host government. The U.S. negotiates, rather than dictates, the terms of those agreements. Unless the host country agrees to its provisions, legislated changes could ultimately result in the closure of those facilities to the United States.

INCREASE IN GROUND FUEL REQUIREMENT

QUESTION: Last year the budget was reduced to reflect decreased consumption of ground fuels and non-flying hour POL. What factors have led to the assumption that the ground fuel requirement will increase $2.6 million in FY 1984?

ANSWER: The increase in FY84 of $2.6 million is for ground fuels and non-fly aviation fuel used for aerospace ground equipment, test cells, and base-level maintenance.

This increase is needed to support the increase of 60 thousand flying hours (+7.5%) in this activity group. It is correct that the estimate in FY82 for ground and non-fly fuels was reduced from the level initially projected in the FY82 President's Budget. However, as noted in last year's justification book, that reduction was due to a revision in consumption factors based on FY81 experience.

INCREASE OF PERSONNEL FOR "CONTRACT CANDIDATE REINSTATEMENT"

QUESTION: Please explain the 312 personnel increase for "contract candidate reinstatement."

ANSWER: Functions identified for cost comparison studies leading to possible conversion to contract are authorized both military and civilian personnel. Previously the Air Force removed all end strength (military and civilian) associated with the functions to be studied. Consistent

with Congressional direction not to reduce civilian end strength in anticipation of contracting, the Air Force also reinstated military end strength effective FY 84. Despite this restoration, the functions are still under active consideration for potential conversion to contract should contractor operation prove more economical. Funding for the end strengths will be needed to pay the contract if conversion takes place.

INCREASE FOR TR-1 SUPPORT

QUESTION: Please provide a further cost breakdown for the $22.1 million increase for TR-1 support.

ANSWER: Contractor support (repair activities, field service representatives and engineering services) account for the majority of increased costs. The following is a breakdown of the FY 83 to FY 84 increase:

Civilian Personnel	$ .082
Transportation	.189
Utilities and Rents	.003
Purchased Equipment Maintenance	.002
Other Purchased Services	18.206
Other Supplies	2.538
Equipment	1.080
Total	$ 22.100

EF-111 A/C PAA INCREASES

Question. The performance criteria demonstrates a 529 personnel increase due to the addition of eleven primary aircraft authorizations for EF-111 aircraft. Is it expected that each time the EF-111 aircraft PAA increases that an additional 50 personnel will be required?

Answer. No. Each additional aircraft will generate a requirement for approximately 40 personnel which includes aircrews and aircraft maintenance. The 529 personnel increase includes wing and squadron overhead for the first squadron in Europe (6 aircraft). This cost is paid only once and we have no plans to add any additional squadrons in Europe.

Transfer of Financial Responsibility

QUESTION: In view of the transfer of financial responsibility two years ago for JCS exercises to the Defense Agencies account, why is an additional $9.2 million required in support of this effort?

ANSWER: Only financial responsibility for the airlift costs associated with JCS exercises transferred to the Defense Agencies account. The remaining exercise support costs--per diem, nonairlift travel and transport, vehicle support, contract quarters, supply support, equipment costs, etc--are still incurred by the Air Force. The requested increase supports the planned expansion of the JCS exercise program which reflects growth to 70,000 C-141 equivalent flying hours of support. The increased flying hour profile substantiates a more intensive exercise program with attendant enhanced Air Force participation and costs in the areas cited above.

INITIATION OF "THIRD COUNTRY ACTION"

Question: A portion of the $9.4M increase for GLCM is for the initiation of a "third country action." Please provide further details of this planned program expansion.

Answer: (Deleted).

TRANSFER OF E-3A SERVICE ENGINEERING

QUESTION: The transfer of E-3A service engineering to the Air Force Logistics Command is the justification for $19 million increase. Where was the program managed previously and where can the offsetting reduction be found?

ANSWER: Prior to Program Management Responsibility Transfer (PMRT) to Air Force Logistics Command (AFLC), the E-3A was managed by Air Force Systems Command (AFSC). Similar requirements which now must be funded by AFLC in the O&M (3400) account for service engineering were previously funded by AFSC in both the RDT&E (3600) and Procurement (3010) accounts, as sustaining engineering, material improvement projects, deficiency reports, corrections of deficiency, etc.

As PMRT occurs, AFLC must budget separately for service engineering funds in the O&M account. No transfer of funds from RDT&E or Procurement is made, but funding in RDT&E and Procurement decreases. However, most PMRT agreements, including the E-3A, require that AFSC will continue to budget and fund for residual tasks and various subsystems not transferred on the PMRT date. Consequently, you will not find a direct correlation in offsetting funds requirements between O&M and the other accounts.

COST SHARING ARRANGEMENT WITH SAUDI ARABIA

QUESTION: Is the cost sharing arrangement with the Saudi Arabian government for E-3A aircraft still in effect? If so, why are funds required to support the increased flying hour utilization rate?

ANSWER: There is presently no E-3A cost sharing arrangement with the Saudi Arabian Government, although the Saudis have provided fuel for the E-3's as well as ground transportation, lodging and meals for USAF E-3A personnel serving on temporary duty in Saudi Arabia. The United States government pays for everything else and an increased utilization rate translates to more dollars for spare parts, repairs etc. The FY 84 request has already been adjusted to reflect the benefit of items provided by the Saudi Arabian Government

JUSTIFICATION FOR INCREASE

QUESTION: Please provide justification for the increase of $2.9 million associated with tactical airborne control system bed down and conversion.

ANSWER: The increase of $2.9M supports the movement of OA-37 aircraft from the CONUS to Osan AB and the transfer of OV-10 aircraft from Osan AB to Wheeler AFB. The OA-37 aircraft are being shipped to Japan and then flown to Osan. Increased funds are driven by TDY, contract and supplies costs to depreserve/preserve aircraft, service

them at the point of embarkation and cover associated beddown requirements at their final destinations. The major portion of the increase is driven by flying hours, as the flying hour costs for the OV-10 and OA-37 are more expensive (particularly in the case of the OA-37 which is twice as expensive) than those for the O-2 aircraft which are being moved out of Wheeler AFB.

EC-135K/EC-130E ACCOMMODATIONS

QUESTION: Justification material contends that FY 1983 flying hours were reduced for the EC-135 and EC-130E aircraft to accommodate heavier than anticipated depot maintenance and modification schedules. Please provide the budgeted schedules for FY 1983 maintenance and modification programs for these aircraft types as compared to actuals. Also provide the mission capable rates for these two aircraft for FY 1983 and FY 1984.

ANSWER: The budgeted schedule for the EC-135K aircraft was for two to receive Programmed Depot Maintenance (PDM) and various modifications. That schedule was later revised to add an analytical inspection, with a corresponding increase in maintenance workhours. The FY 1983 and FY 1984 projected mission capable (MC) rates for C-135 aircraft are 68% and 69%, respectively. The actual FY 1983 rate thus far (Oct 1982 - Feb 1983) for the EC-135K aircraft is 78%.

The budgeted schedule for the EC-130E aircraft was for two to receive PDM plus various modifications. That schedule was later revised to accomplish a safety modification to replace oxygen bottles and to perform an outer wing safety inspection, and the aircraft schedule increased from two to five. The FY 1983 and FY 1984 MC projections for C-130 aircraft are 62% and 61%, respectively. The actual EC-130E FY 1983 rate thus far (Oct 1982 - 1983) is 64.4%.

SUPPORT OF INCREASE OF FLYING HOURS

QUESTION: The justification material seeks to support the increase of flying hours for the OA-37 and OV-10 aircraft, yet is silent on the savings accrued from a 3,000 hour decrease for O-2 aircraft. Are these savings factored into the budget assumptions and, if so, how many?

ANSWER: Yes. Flying hour costs are priced based on computer application of flying hour costs for the projected flying hour profile by aircraft type. The decrease in the O-2 aircraft line does offset the increase for the OA-37 and OV-10 aircraft. However, the increases in the total Program Element are driven by program build and higher flying hour costs for the OA-37 and OV-10. For example, the savings in supplies and fuel for the decrease on the O-2 amounts to $531,000, but the increases in the OA-37 and OV-10 aircraft amount to $3.2M.

PE 27418 Track:

OA-37, OV-10 flying hour cost increase	$3.2M
O-2 flying hour decrease	(.5)
Other (civ pay, travel, transportation, equipment)	.2
Total increase	$2.9M

241 ADDITIONAL MILITARY PERSONNEL

QUESTION: Aside from aircraft crew increases, why are 241 military personnel required for an increase of two primary aircraft authorization AWACS?

ANSWER: The following is provided:

ITEM	MANPOWER	COMMENT
Crews	+80	2 PAA x 20 crew members per PAA x 2.0 crew ratio
Maintenance	+128	64 spaces per PAA required
Overhead/Security	+33	
	+241	

BASE OPS COSTS

QUESTION: What is the base ops cost associated with this increase in military personnel.

ANSWER: The increase of 1,352 military personnel will cost about $3.3 million. This amount is based on a cost of $2,450 per person per year. This factor encompasses direct costs like dormitory support, dining hall service, personnel processing, TDY, etc. It also includes indirect cost associated with an increased population such as vehicle maintenance, transportation of things, additional supply consumption, etc. The factor is calculated by the MAJCOM's based on historical experience.

ASSUMPTIONS USED

QUESTION: Please provide the assumptions used to derive "revised costing of civilian work years" for management headquarters JDA (+1.3 million).

ANSWER: Of the $1,253,000 increase, only $146,000 is attributable to JDA management headquarters (PEC 21798) funding. Specifically, it includes adjustments in civilian pay and benefits, plus minor increases in TDY travel due to expanded mission requirements.

The remaining $1,107,000 reflects funding growth in non-management headquarters activities (operational headquarters, Tactical Air Forces, PEC 27236) due to increases in work years and associated pay and benefit adjustments in PACAF, TAC, USAFE and Joint Electronic Warfare Center. Of this amount, $900,000 is an overpricing of the civilian pay line resulting in an automated input error.

EXTENT OF EXPANSION OF SIMULATION AND ANALYSIS SYSTEM PROGRAM

QUESTION: Provide futher explanation describing the extent of "expansion of simulation and analysis system program" as justification for the 50 percent increase (+$2.2M) for management headquarters Readiness Command.

ANSWER: Two programs -- Joint Theater Level Simulation (JTLS) system and Joint Exercise Support System (JESS) -- are being

accelerated in accordance with OSD and JCS direction. These programs are designed to fill a critical shortfall in planning for contingency operations and in the training conducted under the CJCS Readiness Exercise program.

The JTLS will expand to link theater level simulation with high resolution tactical models. This significantly improves JTLS utility and credibility by balancing multiple service perspectives on tactics for joint force employment. Any theater level conflict will involve all services. Success will depend on their ability to initiate effective joint operations. The JTLS provides a peacetime method to insure this wartime capability.

The JESS provides automated support for joint readiness exercise planning and execution. The increased funding expands integration of ground and air combat simulations with emphasis on the deep interdiction land/air battle. It provides a significantly greater capability to exercise joint staff and component in the realistic employment of defense systems.

INCREASE IN NUMBER OF "RED HORSE SQUADRONS"

QUESTION: Is the Air Force increasing the number of "RED HORSE squadrons" in FY 1984?

ANSWER: The Air Force is not increasing the number of "RED HORSE squadrons" in FY 1984. However, because of the identified shortfalls in critical forward-based engineering forces, the Air Force is continuing to explore alternative programming means for providing this capability.

PROPOSED LEASING OF MODIFIED BOEING 707 SIMULATOR

QUESTION: Please describe the proposed leasing of modified Boeing 707 simulator as RC-135 trainer to include a mission statement, support costs, and duration of lease.

ANSWER: There is no RC-135 simulator available for RIVET JOINT, COBRA BALL, and COMBAT SENT pilot/navigator training. This requires that all RC-135 training be accomplished in operational aircraft. The lack of aircraft available for crew training missions lengthens the aircrew training process. In addition, operating costs for missions on the RC-135 aircraft are higher than simulator training missions.

The MB-26 KC-135 Procedure Trainer (simulator), which uses 30-year old technology has numerous hardware/software problems and is not configured for compatibility with the RC-135. The leased Boeing 707 simulator will be retrofitted to an RC-135 cockpit configuration to provide increased aircrew training opportunity and proficiency without impacting operational requirements on RC-135 aircraft. The leased simulator will provide training for takeoffs and landings (including crosswind), instrument training under day/night and variable weather conditions, emergency procedures, receiver aerial refueling, and aircraft systems training.

The Boeing 707 simulator will be leased with yearly renewal. The lease is expected to be maintained for approximately 5 years. The cost of developing a new RC-135 simulator would be over $30 million and yearly operating costs would approximate those for the leased simulator.

Operating Cost: (in millions)

FY83	FY84
2.500	2.500

FY83 and FY84 funds will begin the lease, provide modification of simulator software/hardware to RC-135 cockpit and navigation system configuration, and provide installation at Offutt AFB, NE. This simulator will correct a serious deficiency in crew training. It should be noted that the RC-135 aircraft accident at Shemya AFB, Alaska was attributed in part to lack of sufficient aircrew training, specifically in areas which the simulator can provide realistic cost-effective training.

INCREASE FOR "SEEK AXLE"/"ELEGANT LADY"

QUESTION: Please provide justification for the $4.8 million increase for "SEEK AXLE" and "ELEGANT LADY" classified programs.

ANSWER: As this involves Special Access Programs, the requested information will be provided to Mr. Dyer and Mr. Rhodes.

EXPLANATION/COST DATA

QUESTION: Provide an explanation and cost data to support the increase of 569 military personnel for "TAC special projects".

ANSWER: This question, due to its security classification, will be answered directly to Mr. Dyer/Mr. Rhodes.

ADDITIONAL SUPPORT NECESSARY

QUESTION: An increase of $1.2 million is requested for leased worldwide communications for U.S. Readiness Command/U.S. Central Command/and the Joint Deployment Agency. In view of current data links for Readiness Command and JDA, why is this additional support necessary?

ANSWER: The $1.2 million is required to fund the initial annual recurring and non-recurring lease cost of the secure voice switch supporting USCENTCOM HQs at MacDill AFB, FL. There currently is no switched secure voice capability to support any of the joint activities at MacDill AFB. Upon acceptance of the switch (Oct 83), service will be extended to support USREDCOM and the Joint Deployment Agency. Secure voice communication capability is a critical element for command and control of USCENTCOM deployed assets and interface with JCS. Lack of secure voice would seriously hamper performance of sensitive operations assigned for USCENTCOM.

EXISTING COMMUNICATIONS ASSETS IN EUROPE

QUESTION: The budget request includes a $1.1 million increase for command and control communications for European Distribution System (EDS) aircraft. Aren't existing communications assets in Europe adequate to support this program? If not, please provide further explanation.

ANSWER: The funding requested is for Logistics Command, Control and Communications (Log C^3). The funding will not support EDS aircraft operations. The EDS aircraft will operate

and be controlled within the European Tactical Air Control System. The Log C^3 funding requested is to improve the material management decision support capability at our European operating locations. Funding will provide improvements to existing Automated Data Processing (ADP) equipment and access to existing alternate communications networks. The improvements will provide the Air Force with the capability to make timely distribution decisions on critical aircraft spares based on the highest theater requirement. The Air Force logistics system currently does not have the capability to make timely distribution decisions on a theater priority need basis.

JOIST SYSTEMS ANALYSIS PROGRAM

QUESTION: How does the JOIST systems analysis program for the U.S. Readiness Command differ from the simulation and analysis system program described on page 167 in the justification material? Please provide total costs associated with these two programs.

ANSWER: The Simulation Analysis System program addressed on page 167 is an internal tool used by the REDCOM battle staff. The FY 83 cost for this system was $1.37 million. The projected FY 84 cost is $3.37 million. The increase is related to expansion of the simulation and analysis program, sometimes called the Wargaming and Simulation System (WG&SS). U.S. Readiness Command has as one of its major tasks the development of a Wargaming and Simulation System that will provide a set of tools to be used for simulation and analysis of joint force issues in the three broad areas: (1) deployment, employment and sustainment alternatives during the deliberate and crisis action planning processes, (2) development and evaluation of joint tactics, techniques and procedures (JTTP), (3) exercise of Joint Staffs and their components using simulation to provide realistic situations based on contingency planning and joint doctrinal concepts and procedures.

The JOIST System is a training device to be used by Tactical Air Control System/Tactical Air Defense System (TACS/TADS) Controllers Battle Staff training. The total cost of the JOIST system in FY 84 is $690,000. There was no FY 83 cost associated with JOISTS.

INCREASE FOR SOUTHWEST ASIA HOST COMMAND SUPPORT

QUESTION: Provide a breakout of the $8.9 million increase for Southwest Asia host command support. Further, please provide all procurement fund requests associated with this initiative. Provide total cost and nature of base maintenance requirements for Southwest Asia real property maintenance increase of $13.2 million.

ANSWER: The $8.9M increase for host command support provides base operating support services--personnel support, vehicle maintenance, transportation, payment for consumables provided by the host country, and training deployment associated with our presence in Oman. No FY84 procurement funds have been requested in conjunction with the host command support function in Oman. The real property maintenance activities requested increase of $13.2 million is to support U.S. operations in Oman ($8.1 million) and Egypt ($5.1M). In Oman, the funds are necessary for operating new facilities constructed, or scheduled to be constructed as approved by the Congress, at four locations. Specifically this is

to pay the initial U.S. share of operating costs to include utilities, facility maintenance and repair, fire protection, and refuse collection services, etc. [Deleted]

[deleted.] This also includes utilities, maintenance and repair of facilities, and the normal range of engineering support services (fire protection, etc.).

BUDGET FOR U.S. FOREIGN NATIONAL CIVILIAN PAY

QUESTION: Since no pay raise is assumed for FY 1984, please explain why $12.6 million is budgeted for "U.S. and foreign national civilian pay?

ANSWER: The Foreign Services Agreement of 1980 establishes authority to provide an annual payraise for the Foreign Nationals in accordance with host country agreements. The $12.6 million is budgeted for Foreign National Indirect Hire civilian pay raises based on these agreements.

ENGINEERING SUPPORT

QUESTION: Other than a modest increase of $3 million for CE supplies, the MFP II Base Ops requirement for engineering support seems relatively level with the FY83 program. Despite the performance indicators, why is an increase of over $18.5 million budgeted for other engineering support?

ANSWER: The $18.5 million increase budgeted for other engineering support in FY84 is absolutely necessary. The increases are necessary to support new GLCM installations at Greenham Common, UK and Comiso, Italy plus start up costs for a third country location. Other increases for new facilities constructed in the Southwest Asia theater and to support the expanding mission at RAF Alconbury and RAF Upwood.

This category includes fire protection and crash rescue, custodial, refuse collection, Architect-Engineer design and a host of other normal daily services necessary to support operation of Air Force installations. Besides a portion of the $3 million increase for CE supplies, increases in this category include a portion of the following items from Section B, Reconciliation of Increases and Decreases: i, k, l, m, p, and r pages 196 and 197.

PRODUCTIVITY ENHANCEMENT CAPITAL INVESTMENT

QUESTION: Provide an audit trail, by year, of prior year appropriations for the Productivity Enhancement Capital Investment, or the so-called "fast payback" program for Air Force projects since 1978.

ANSWER: Fast Payback Capital Investment (FASCAP) has been funded through appropriation 3080-Other Base Maintenance and Support as follows: FY 78, 0; FY 79, $3.6 M; FY 80, $3.8 M; FY 81, $4.3 M; FY 82,$5.5 M; and FY 83, $7.9 M.

SAVINGS FROM "FAST PAYBACK"

QUESTION: Demonstrate the savings which have been factored into the FY 84 budget resulting from prior year "fast payback" capital investment program by budget activity and program package.

ANSWER: In order to provide an adequate incentive for all

levels of management to participate in the Fast Payback Capital Investment Program (FASCAP), OSD and Air Force in turn, subscribe to a full reinvestment policy. This means that savings resulting from productivity enhancing projects may be reapplied against other valid, but previously unfunded requirements. What we report as savings, therefore, are actually cost avoidances and not factored into the overall budget. Cost avoidances, however, are legitimate in that they enable Air Force to accomplish much more than what has been budgeted for in any given year.

FASCAP PROGRAM

QUESTION: Provide additional details on the FASCAP program including a summary of costs and savings.

ANSWER: The Air Force Fast Payback Capital Investment (FASCAP) program is funded through appropriation 3080 - Other Base Maintenance and Support Equipment. A summary of program highlights by fiscal year is shown below: ($ Millions)

	77	78	79	80	81	82	83*	TOTALS
Budget Author.	6.5	0	3.6	3.8	4.3	5.5	7.9	31.6
Actual Investment	6.5	0	1.6	2.5	4.3	5.4	7.3	27.6
Life Cycle Savings	48.4	0	13.8	22.3	30.8	45.3	54.3	214.9

*As of 31 May 83

Except for the two year period following FY 78 (the year when Congress withheld all of the Service's fast payback funds pending audit reviews), the Air Force has been unable to keep up with demand. From FY 82 to FY 83, for example, we carried forward a backlog of projects worth $3 million. Most of the funds go toward the purchase of labor saving devices such as word processors, automated filing systems, and high speed printers/copiers. FASCAP has also provided funds for materiel savings initiatives like asphalt recyclers, computer tape evaluator/cleaners, and automotive wheel alignment and balancing systems. Finally, projects can amortize directly through dollar savings with items like gastroscope, electrocardiographic exercise stress, and ultrasound equipment, which save on the high cost of off-base medical referrals.

Since the program began, Air Force has documented life cycle savings worth $215 million--an average return on investment of nearly 8 to 1. Because current OSD guidelines permit the Services to reinvest their savings on other valid, but previously unfunded requirements, no savings have been factored into the annual budget. Without FASCAP, however, the Air Force would have had to spend millions more in FY 83 to meet its obligations. More importantly, FASCAP initiatives continue to generate savings throughout their economic life. Finally, given that over 800 individual projects have been approved thus far, FASCAP funding provides a desirable incentive for personnel to seek out and implement productivity enhancing opportunities.

DESCRIBE CURRENT SYSTEM/IMPROVEMENTS

QUESTION. An increase of $9.5 million is requested for an improved communication and information system for the Joint Deployment Agency. Describe the current system and the improvements intended with this funding.

ANSWER. The Joint Deployment System (JDS) is intended to optimize the application of strategic transportation resources to

the movement of forces and material in support of national objectives. This process today is extremely subjective in that notional forces and movement assets are used. An enhanced JDS using real-time information from multiple commands will provide an objective and dynamic viewpoint of the optimum solution to the Joint Deployment problem. In October 1982, the Deputy Secretary of Defense, in response to congressional direction to improve readiness, accelerated the development of the enhanced JDS. To meet the scheduled full operational capability in 1985, instead of 1987 as was previously planned, and increase of $9.5 million for development is requested.

OTHER JUSTIFICATION

QUESTION: Last year funds were deleted to upgrade the WWMCCS Information System/Joint Program Management Office. Is the requested increase of $4.5 million based on any other justification than that provided last year?

ANSWER: Yes. The justification provided for the FY 83 budget was to establish the WWMCCCS Information System (WIS) Joint Program Management Office (JPMO) and the Systems Program Office (SPO). These offices are now established. The justification for the FY 84 budget is for increased requirements for both offices. The Development Evaluation Facility (DEF) collocated with the SPO at Hanscom AFB, Mass will be established in early FY 84. The WIS DEF will test and evaluate computer hardware and software prior to fielding the new capabilities. Leased communication links are required to support the DEF and other JPMO directed development efforts. The additional funds are required to pay for the operation and maintenance of these facilities, computers, software, and the leased communication lines. The requested funds are essential to the development and testing of WIS capabilities.

SAVINGS REALIZED

QUESTION: The Air Force proposed to train E-4 crews by contract since two of the authorized four E-4 aircraft will not be operational due to a retrofit program. The justification material demonstrates an offsetting $2.1 million increase for this contract and a similar decrease from the reduction of 420 E-4 flying hours. However Air Force Regulation 173-13 indicates that the average flying hour costs savings from this decrease is more along the order of $5.9 million. Where is the additional $3.8 million savings realized?

ANSWER: Air Force regulation 173-13 contains both life cycle and budget year factors. The $5.9 million savings referenced in the question are based on life cycle costs in all appropriations, and not operation and maintenance(O&M),budget year costs. Life cycle costs (of $13,900 per flying hour) are based on anticipated annual expenses over a period of 20 years for the E-4, and do not represent O&M costs anticipated in FY 1984. E-4 aircraft are maintained under a Contract Logistics Support (CLS) contract covering Contractor Operated and maintained Base Supply, Parts Exchange, Field Support, Technical Data Time Compliance Technical Orders (TCTO's), modification installations and other related activities funded by the O&M appropriation. CLS funding is adequate to cover

planned requirements for the E-4B. Hence the only identifiable O&M saving associated with the E-4B contract training is in aviation POL (420 hours x $4,924 AVPOL per flying hour = $2,068 million)

MISMATCH BETWEEN STRENGTH AND WORK YEARS

QUESTION: Although the military end strength in support of Other Communications is decreasing by 84 spaces, enlisted military work years are increasing by 602 in the same period. What has caused this mismatch between end strength and work years?

ANSWER: In comparing the enlisted end strength and work year totals in question, two activity groups must be considered. These activity groups are Other Communications and Station Operations. During the process of preparing the Justifiction Book display, an administrative error in the assignment of program elements to the activity groups caused an understatement of work years in Station Operations and a corresponding offset in Other Communications. When the enlisted end strengths and workyears are combined for the two activity groups, the correct combined figures are 230 enlisted end strengths and 115 workyears.

ADDITIONAL CONTRACTOR SUPPORT FOR DSCS III

Question: Why is additional contractor support for DSCS III satellite on orbit required? (+$1.9 million)

Answer: The additional $1.9 million for DSCS is needed to provide increased on-orbit technical support as the DSCS III constellation begins to grow in FY 1984. The first DSCS III satellite on-orbit is transitioning to an operational status in mid FY 1983 and the second DSCS III will be deployed and checked out on-orbit by [deleted.]

BUDGET TRACK FOR TELECOMMUNICATIONS CENTER UPGRADES

QUESTION: An increase of $1.7 million for the Telecommunications Center upgrade program was approved in the FY 1983 budget for overseas stations. The FY 1984 request seeks a further increase of $2.2 million. Provide a budget track from FY 1982 through FY 1986 for all costs associated with Telecommunciations Center upgrades and an estimate of future savings.

ANSWER: The TCC upgrade program improves communications centers in the CONUS as well as at overseas locations. It provides state-of-the-art equipment to enhance and automate manpower-intensive and logistically unsupportable equipment. This worldwide project also includes funds for minor construction, contract maintenance and leased communications services.

Budget Track:	FY 82	FY 83	FY 84
3080	0	16.500	19.250
3400	0	1.724	3.935

Savings in the TCC Upgrade Program are in the manpower spaces reduced as a result of improved equipment operation. Consistent with the Congressional and OSD direction to automate and consolidate telecommunications centers, the savings build to a total of 119 spaces by FY 84. These savings help define the front-end reductions directed by Congress and OSD in FY 79 through FY 81 time-frame totaling 777 end strengths.

The Five Year Defense Plan (FYDP) is an expression of fiscal estimates based on projected force levels, procurement initiatives, and overall policy direction at a point in time. Each year, the Department conducts an extensive program/budget review resulting in a wide range of program changes and financial estimates. The FYDP beyond the budget year is an internal record of proposed program and resource requirements. It includes programs that will be deleted, deferred, and repriced. It also excludes candidate programs that may be incorporated during subsequent reviews. An important point is that it includes no narrative explanation and may in fact not agree with the President's out-year budget projections. Such data could be misinterpreted, thereby consuming many unproductive hours on the part of both our staffs explaining differences between updates and subsequent budget requests. For these reasons we have not provided the out-year data requested.

FUNDS FOR COMMUNICATIONS FRONT END PROCESSOR

QUESTION: Funds were provided in FY 83 for the acquisition and maintenance of two communications front end processors (CFEP) to support the Automated Weather Distribution System (AWDS). Why is an additional $1.4 million required to support this effort in FY 84?

ANSWER: O&M funding ($.661M) was provided for a one year lease of one CFEP in FY 83 for the purpose of software development and testing. Acquisition funds ($4.4M) were were also provided for the purchase of two CFEPs for installation at the Air Force Global Weather Central at Offutt AFB in FY 84 to support the AWDS. The FY 83 lease program was slipped to FY 84 due to a delayed Request for Proposal (RFP). The late RFP delayed the critical software development and testing phase which in turn forced the slip of the FY 84 CFEP purchases until FY 85. The FY 83 funds ($.661M) were used to cover a portion of our O&M leased long haul communications shortfall. The FY 84 expenditure for the CFEP lease is broken out as follows:

CFEP Leasing Costs	$.693 million
CFEP Contract Installation/Maintenance	.798 million
	$1.491 million

INCREASE OF CIVILIAN PROGRAM CHANGES

QUESTION: The justification material supports a $1.2 million increase for civilian program changes associated with an additional 31 man years of effort. However, the performance criteria personnel summary suggests no such change. Furthermore, the effects of foreign currency are reflected as an increase to the program despite the FCF account reimbursement policy. Is there any other justification for this increase?

ANSWER: The Performance Criteria Personnel Summary on page 232 of the O&M justification material was in error. The summary is:

	FY 1982	FY 83 EST	FY 84 EST	83/84CH
Civilian Workyears				
US Direct Hire	1193	1397	1424	27
Foreign Nat'l Direct	88	104	105	1
Foreign Nat'l Indirect	124	142	145	3
Total	1405	1643	1674	31

The effects of the Foreign Currency Fund should have been included as a price, not program adjustment. The $425,000 reflects a lower anticipated FCF change in FY 84 than FY 83. This foreign currency rate change is in comparison to FY 83's FCFA rate. Now established, foreign currency fluctuations will not affect FY 84 prices (unless the FCFA rates are changed).

DEFENSE DATA NETWORK PROGRAM

QUESTION: A budgeted increase of $14.1 million is requested for the Defense Data Network program to pick up the functions of AUTODIN II program which was canceled last April. Neither the FY 1983 nor FY 1984 budget justification demonstrates any offsetting reductions from this program cancellation. Please provide the total cost of the DDN program and all savings accurred from AUTODIN II cancellation.

ANSWER: At the time of the submission of the FY 1983 President's Budget, SECDEF direction to switch from AUTODIN II to the DDN program had not been received. Hence the FY 1983 President's Budget only reflected a request for $2 million for AUTODIN II and no offset for DDN. Further, no funding had been programmed or budgeted for AUTODIN II for FY 1984 and hence no offsetting reduction for the termination of AUTODIN II is reflected in the FY 1984 President's Budget. The AF O&M share of the DDN for FY 1983 is $4.2 million, $2.0 of which was funded with the FY 83 AUTODIN II funds. At the time the FY 83 column of the FY 84 Budget was finalized, the FY 83 DDN funding requirement was still evolving. The remaining $2.2 million is currently being staffed as part of an FY 83 reprogramming action which hopefully will soon be forwarded to the Congress. The Defense Communications Agency has informed the Air Force the O&M share of the DDN for FY 1984 will be $14.1 million. The total cost (all appropriations) of DDN program is projected to be $535 million for FY 82-88 (escalated FY 82 dollars). The cost advantage of the DDN program over AUTODIN II is calculated to be $159 million in (unescalated) FY 82 dollars.

GROUND ENTRY POINT FOR NEACP

QUESTION: What efforts are planned with the $4.3 million to establish three ground entry points for the NEACP to support the Western White House?

ANSWER: The ground entry points to support the Western White House total $1.3M/year in lease communications costs. The three ground entry points provide connectivity from the southern Colorado border to March AFB, California, with one ground entry point right on March AFB. The other two ground entry points are at Farmington, New Mexico, and Flagstaff, Arizona. Additionally,

the funds also support the added lease costs for the Lamar, Colorado, SAC ground entry point to be the able to support NEACP. $3.0M are programmed to provide mobile ground entry points to enable coverage of the Northwestern and Southern parts of the United States in support of the President, NEACP, or any other ABNCP on a temporary basis. Additionally, the mobile ground entry capability is required to establish a temporary ground entry point anywhere in the United States or overseas to support the President or any other ABNCP need.

LOCATION/NATURE OF COST

QUESTION: Please provide the location and nature of cost for the $1 million increase to upgrade Southwest Asia support Defense Communications System (DCS) HF entry.

ANSWER: Air Force will provide DCS HF entry to Southwest Asia from Clark AB, RP; RAF Croughton, UK; and Incirlik AB, TU. The $1 million will be used to fund the non-recurring and recurring cost to lease common user AUTOVON circuits. The leases will also improve the connectivity from Southwest Asia by providing alternate routes from the DCS HF entry stations to the AUTOVON switches. In the case of Incirlik and Croughton, leases will have to be utilized as the DCS is saturated.

The geography of SWA necessitates the use of HF and satellite systems and precludes the extension of DCS tropospheric scatter or microwave radio systems. The vulnerability and capacity of both HF and satellite systems make it imperative that each be available to back-up the other. Furthermore, the rapid deployment posture requires the use of HF. The best AF HF stations to support SWA operations are at Clark, Incirlik, and Croughton. Without these funds, AF operations in SWA will be restricted because of inadequate inter-theater communications capability.

GSA JUSTIFICATION

QUESTION: Did GSA provide any further justification for the $1 million additional cost for FTS?

ANSWER: GSA advises that the additional $1 million ($.856 million) is for actual Air Force usage based on prorated charges determined by GSA sampling during the billing period.

SPACE SUPPORT

Question: Please provide any justification for the $14.7 million increase for "other price growth."

Answer: The $14.7 million increase for "other price growth" reflects the impact of the OSD approved FY 1984 inflation factor of approximately 5.1 percent for contractual services as applied to Space Support Program contract costs in FY 1983.

SPECIFICS OF NEGOTIATED CONTRACT OPTIONS

QUESTION: Provide the specifics of negotiated contract options for maintenance and equipment spares to operate Indian Ocean, Vendenberg and New Hampshire tracking stations. What is the value

of the contract and explain the basis of increase in excess of OSD price growth figures thereby requiring $3 million increase.

ANSWER: The option involved is a year by year extension (same scope) of the basic, one year network support contract awarded in FY 82. This contract and each of its one year extensions provide for 24 hour per day, 7 days a week maintenance and logistics support. In addition, the contract provides total supply and service support to the Indian Ocean tracking station as a result of the lease agreement between the United States and Seychelles governments. The use of options to extend the basic contract was chosen because the contract is funded with 3400 appropriation funds which must be appropriated on a yearly basis.

The value of the contract in FY 84 is $23.6 million. $3.0 million of this is for inflation in excess of OSD-allowed factors because the total contract, including options, was negotiated at the time of contract award in FY 82, and as mentioned above, the contract provides support at an overseas site which does not mirror the OSD price growth rates.

INCREASE FOR VANDENBERG LAUNCH SITE

QUESTION: Provide a detailed cost breakout of the $42.3 million increase for Vandenberg launch site.

ANSWER: The increase in Vandenberg O&M costs represents the continuing build-up of activities to support the additional facilities and equipment coming on-line for the initial launch capability. The increase also reflects the beginning of the transition of the workforce from a development to an operational orientation. By the end of FY 84 essentially all facilities and equipment supporting the launch effort will be on-line. The majority of the cost increase is for the flight element contractors who are supporting the integrated launch systems and Ground System Tests (GSTs) in preparation for the first mission. The Vandenberg Launch Processing System (VLPS) adds a third shift in FY 84 to support the increased pace of launch preparations.

Additional cost increases from FY 83 to FY 84 are for reimbursement to NASA for processing flight vehicle hardware, propellants and gases for the GSTs, and to continue establishing the logistics infrastructure for operational flights.

A breakout of the cost increase follows:

Flight Element Contractors	$22.1
NASA Reimbursement (flight hardware)	4.3
Logistics	7.0
VLPS	8.2
Space and Missile Test Organization Reimbursements	0.7
	$42.3

NASA PRICING POLICY

QUESTION: Why did the Air Force agree to a NASA pricing policy requiring reimbursement costs from Air Force payable one year before actual flights? Justification material suggests the increase of $44.7 million for orbiter flight charges and $15.5 million for payload integration are in excess of actual FY 1984 requirements.

ANSWER: One of the key principles of the NASA/DOD pricing agreement is recognition of DOD's multi-billion dollar investment

in the national Shuttle program. Part of the recognition for that contribution is payment of the DOD flight charge one year prior to the flight rather than incremental payments beginning three years prior to the flight as NASA requires for other US Government, commercial and foreign users.

The increases for orbiter flight charges (+44.7 million) and payload integration (+15.5 million) are firm requirements. In accordance with the pricing policy we are firmly committed to reimburse NASA in FY 1984 for two Air Force missions in FY 1985 which requires the additional funds. Payload integration activities, to establish compatibility of payloads to the Shuttle, span a period of up to three years prior to a flight. To prepare for flights in FY 1985 we must fund the increased payload integration activities of our contractors and NASA in FY 1984.

RECOVERY CAPABILITY FLYING HOURS

QUESTION: Why are recovery capability flying hours remaining at the FY 1983 level despite the decline of one HH-53 aircraft? What are the savings associated with the decrease in PAA HH-53?

ANSWER: There is no decrease in HH-53 Primary Aircraft Authorization (PAA); however, there is a decrease of one (1) Average Primary Aircraft in the Inventory (APAI). The flying hours remain the same because of mission requirements; and to maintain the same flying hour program, the aircraft are flown at a slightly higher utilization rate. Hence there are no savings associated with the decrease of one (1) APAI aircraft.

PROVIDE CLASSIFIED PROGRAM JUSTIFICATION FOR INCREASES

QUESTION: Please provide classified program justification for increases associated with special tactical unit detachments.

ANSWER: This question, due to its security classification, will be answered directly to Mr. Dyer/Mr. Rhodes.

F110 ENGINE MODEL SPECIFICATIONS

QUESTION: How do the F110 engine model specifications compare to those in the original F100 engine? Be specific with respect to:

- basic design mission
- scheduled inspection interval
- damage tolerance life
- high mach capability
- hot fuel capability.

ANSWER: The current F110-GE-100 and F100-PW-220 engine specifications are not directly comparable to the original F100 specification because of a significant change in design requirements with respect to durability. Our current design requirements include the Engine Structural Integrity Program (ENSIP) requirements. Also, the engines must now satisfy the F-16 requirements which include heavy emphasis on air-to-surface missions in addition to the original F-15 air superiority requirements. We also have better definitions of actual aircraft mission usage.

Recognizing these changes which have evolved in the 14 years since the original F100 specification was defined, the following differences have resulted: (a) The basic design life is essentially the same as the original F100 goals with respect to flight hours.

The original spec was deficient in defining cyclic usage resulting in less durability than desired. The new specs will eliminate this deficiency. (b) The scheduled inspection intervals are also consistent with original F100 goals, but now are more likely to be achieved. (c) The original F100 engine specification did not address damage tolerance. (d) The high Mach requirements have been revised to reflect more realistic requirements. The original requirement represented one flight exceeding Mach 2 every 20 flight hours. Our current F-15 experience has been less than one high Mach flight in 100 flight hours. The current engine specifications require about half the original goal to allow margin for future mission evolution. (e) Hot fuel requirements remain unchanged.

ORIGINAL F100 DESIGN REQIUREMENT

QUESTION: Did the original F100 design requirement permit high mach flight for 10 hours anywhere in the flight envelope?

ANSWER: Yes, but for no more than three minutes at a time.

COMPARE WITH F110 DESIGN SPECIFICATION

QUESTION: How does this compare with the F110 design specification?

ANSWER: The F110-GE-100 engine specification, as well as the F100-PW-220, has been updated to reflect current weapons systems requirements that include six hours at high Mach flight (above Mach 2.0). This reflects a coordinated requirement with the user and represents more than twice the historical usage rate to allow margin for future mission evolution.

MAXIMUM HIGH COMPRESSOR DISCHARGE TEMPERATURE

QUESTION: What is the maximum high compressor discharge temperature in the F110?

ANSWER: There has been a misconception that there is a limit on the high pressure compressor discharge temperature in the F110 engine which will restrict high Mach number flight of the F-15. There is no limit on the maximum high pressure compressor discharge temperature which restricts operation of the F-15.

ENGINE DESIGN SPECIFICATIONS IN RFP

QUESTION: Will the engine design specifications in the RFP be lowered from those of the original F100 engine?

ANSWER: The engine specifications for the competitive Request for Proposal (RFP) are different from the original F100 due to evolution of our basic design requirements and a better definition of the weapons system missions. These requirements are not lower, and, in fact, represent the original durability goals of the F100 engine as measured in engine flight hours. Current F100 engines demonstrate less than half this life.

AIR FORCE REJECTION OF PRATT AND WHITNEY OFFER

QUESTION: Why did the Air Force reject the Pratt and Whitney offer for multi-year procurement of the F-100 engine?

ANSWER: The Defense Acquisition Regulations address this situation specifically. If a proposal preempts a planned competition, it must be returned. Certainly, the Air Force wants to see bids from both competing prime engine vendors rather than accept one initial offer.

PROVIDE COST COMPARISON

QUESTION: Please provide a cost comparison between multiyear procurement of the F100 engine with the current Air Force dual award engine program.

ANSWER: We will not have actual cost comparisons until we receive the proposals from the contractors. Each contractor has been asked to provide cost data to support single or multiyear buys for sole source and dual award options. The implication that the Air Force is committed to a dual award is incorrect. We will carefully assess all our options to determine which is in the best interest of the Air Force.

CHANGE IN F110 DEVELOPMENT PROGRAM?

QUESTION: If the Air Force were directed by Congress to restrict the alternate fighter engine competition to the "E Model" dual role fighter, how would that change the F110 development program? Would such restriction cause the Air Force to reconsider multi-year procurement of the F-100 engine for F-15s and F-16 C/Ds?

ANSWER: If the competition were restricted to the "E Model" dual role fighter, the small number of engines required may not justify the competition. The Air Force would continue Full Scale Development (FSD) of the F110 engine in order to maintain a competitive option should the need arise. The Air Force has requested that proposals in the competition include multiyear options. We would continue to consider possible multiyear procurement in any reasonable circumstances.

AIR FORCE RELEASE FUNDS

QUESTION: Has the Air Force released the $30 million added by the appropriations conference last year for higher thrust for the F-100 engine? Just what is the status of the $30 million added for F-100 thrust improvements?

ANSWER: Of the total $38.3 million appropriated last year by the Congress, $10.3 million has been released to the Air Force by OSD. As of 31 March 1983, approximately $1.4 million has been committed.

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AIR FORCE AIRLIFT/CENTRAL SUPPLY AND MAINTENANCE

ASSIGNED AIRLIFT MISSION

QUESTION: Given the increasing delivery of C-5A modified aircraft, does the Air Force anticipate an eventual phase out of the allowable cabin load restrictions and subsequent industrial fund subsidies? Please provide a cost accounting of how the FY 1984 ASIF subsidy for C-5A aircraft of $102.7 million was derived.

ANSWER: The $102.7 million request for allowable cabin load (ACL) restrictions is $11.5 million less than FY 1983 and is due to the impact of the C-5A modified aircraft. The ACL funding is programmed to continue to decline as aircraft are modified, and no ACL funding is programmed after 1987. The calculation for FY 1984 is shown below.

Channel Hours Flown		Direct Operating Cost Per Hour		Restriction Factor		$ Mil
25,023	X	6,953	X	59%	=	$102.7

TRAINING FLYING HOURS

QUESTION: In light of the deliveries of C-5A modified aircraft and the continuing subsidy, why has the Air Force elected to increase training flying hours by 1,577 at a cost of $9.2 million at this time? Wouldn't the cheaper alternative be to change the auto-pilot mode procedures to provide more hands-on training for current level of flying hours?

ANSWER: MAC has repeatedly gone on record expressing the grave necessity for post wing mod proficiency flying hour increases. General Huyser (prior CINCMAC) accepted the flying hour program (lower than he wanted due to wing problems) as the absolute minimum. However he stated loud and clear that the program must increase as the wing mod progresses to insure a safe and experienced crew force. We quote General Huyser's response to Senator Levin, hearing date, February 18, 1981:

> "As I mentioned earlier, the C-5 program is computed on minimum event-centered currency. I must emphasize this is the bare minimum I can live with and significantly below my desired level of proficiency. We have been forced to reduce the C-5 flying activity because of winglife constraints and have selectively manned the crew force with experienced personnel only. This experienced crew force is begining to attrite and must be replaced. To maintain our worldwide outsize airlift capability, I plan to gradually increase the C-5 flying hour program, starting in FY84, as the wing is modified."

The absolute minimum program was based on the highly-experienced crew force we had at the time. Our current force is not nearly so experienced in total flying or in C-5 flying hours. There were two serious C-5 incidents during FY82 that were directly attributable to reduced pilot proficiency. One aircraft at Marseilles, France

completely stalled, lost 2,600 feet of altitude and recovered only 700 feet above the ground. The other, at Torrejon AB, Spain seriously approached a stall, activated the stick-shaker stall warning and recovered just before going into a full stall. Both are signs of impending disaster if proficiency is not improved as soon as possible.

Take-offs, landings, instrument maneuvers and simulated emergency procedures are essential elements of the pilot's training, practiced repeatedly on local training missions. Many of the maneuvers practiced on unilateral training missions are prohibited on airlift missions unless an emergency actually occurs. Hand flying an aircraft at cruise altitude and airspeed will not give our pilots the proficiency they need for the more critical phases of flight such as take-offs, approaches and landings. Unilateral training is conducted in a highly controlled and restricted environment using standardized procedures and remains as the nucleus from which all other phases of continuation training emanate.

Changing auto-pilot mode procedures on airlift missions would be counter productive. Safety demands the enroute use of the auto-pilot to prevent fatigue on long flights. Air Force regulations demand considerable reductions in a crew's duty day because of the additional fatigue generated should an auto-pilot become inoperative. Auto-pilot operation also allows more attention to be devoted to searching for other aircraft to avoid mid-air collisions.

In FY84, Aircraft commanders will fly 10.6 hours in the local pattern. Without the increase, they will fly only 8.6 hours and that is not enough. In FY84, copilots will fly 19.4 hours in the local pattern. Without the increase, they will fly only 11.4 hours and that is not enough.

In summary, the C-5 aircrew experience is waning and we must, in concert with the wing mod program, channel our requirements from what used to be an absolute minimum flying hour program for experienced to the desired level of proficiency for our current crew force. To effectively manage the C-5 crew force, it is imperative that the 1,577 hours be funded.

REQUEST FOR ADDITIONAL FLYING HOURS

QUESTION: An increase of $2.3 million is requested for an additional 490 flying hours to transport aircraft to and from depots and flight tests. Why can't this increase in flying hours be accommodated within existing flying hour levels?

ANSWER: This increase is accommodated within existing flying hour programs. Flying hours are not added to the program to transport aircraft to and from the depot and flight test. Once constructed, they are divided into funding categories. The test and ferry category is based primarily upon the periodic depot maintenance (PDM) schedule. Aircraft are scheduled into PDM on a calendar basis. As test and ferry hours increase or decrease, hours made available to users as an airlift by-product in SAAM and Channel categories change in the opposite direction. Total hours do not change. Pilots are accredited for events accomplished on these missions to meet total requirements.

COST OF C-SAM LEASING

QUESTION: Break out the full cost of C-SAM leasing for FY 84 and latest estimate of when the lease will take effect.

ANSWER: The C-SAM lease was effective on 6 June 83 when Gulfstream Aerospace was selected to provide the C-SAM aircraft to the Air Force. The three leased aircraft will be delivered in September and October 1983.

C-SAM leasing costs for FY 84 will be $11.9 million. This cost is broken out as follows: Aircraft Lease-$8.1 million; Contractor Logistics Support-$3.7 million; Data and Technical Manuals-$0.1 million.

In addition, there will be a flying hour cost of $2.1 million for fuel and aircrews support (TDY) not provided by the contractor.

OVERSTATEMENT OF FLYING HOUR ESTIMATE

QUESTION: Based on Air Force Regulation 173-13 and information papers provided on April 18 concerning average flying hour costs by aircraft type, the justification material appears to overstate the FY 1984 flying hour estimate for C-141, C-5 C-130 aircraft by at least $35 million. What is the reason for this discrepancy?

ANSWER: The flying hours contained in the assigned airlift mission activity group are Airlift Service Industrial Fund (ASIF) flying hours. The rates for C-130, C-141, and C-5 aircraft are calculated by the ASIF to recover its operating costs. Those costs not only include aircraft flying hour expenses, reflected in AFR 173-13, but directly related overhead necessary to operate the airlift system. The rates used are approved by OSD and only provide sufficient resources for the ASIF to operate in a breakeven profit/loss mode during FY 1984. This financing methodology has been used successfully since 1958. Therefore, no discrepancy exists in the justification material for assigned airlift mission.

INCREASE OF CT-39 FLYING HOURS

QUESTION: Provide any justification for the increase of 5,886 CT-39 aircraft flying hours.

ANSWER: The increase is to provide training hours for additional Undergraduate Pilot Training (UPT) graduates who will enter the CT-39 force in FY 84. The force build represents a conscious Air Force decision to base the CT-39 flying hour program on an inexperienced pilot force by assigning 75 UPTs per year until they comprise about 80% of the force. This level, which will be achieved in FY 84, allows the Air Force to avoid flying 54,750 hours in much more expensive aircraft, e.g., C-5s, C-141s, B-52s, or C-135s. This efficiency is achieved by "aging" inexperienced pilots in a relatively low-cost airplane. "Aging" time is used to develop basic pilot skills, airmanship, crew coordination ability, and general aviation knowledge, and may or may not be accomplished in a primary weapon system.

In the C-141, for example, an inexperienced pilot would have to receive approximately 730 hours of "aging" time in addition to a mandatory 400 hours in the C-141 prior

to upgrading to aircraft commander. If the "aging" hours were flown in the C-141, the cost would be $3,006,140; however, if the same hours were flown in the CT-39, the cost would be $544,580. Thus, the Air Force can save $2,461,560 for each pilot who is "aged" in a CT-39 rather than in a C-141. Cost comparisons are based on a flying hour cost of $4,118 for the C-141 and $746 for the CT-39. The C-141 was used for illustration only and savings for other aircraft would be different. In practice, the inexperienced pilots who are initially assigned to OSA aircraft are reassigned to a primary weapon system (C-5, C-141, B-52, or C-135) within 33 months from the time they complete UPT. The total training cost avoidance realized as a result of this assignment policy amounts to about $214 million each year.

DELIVERY OF EUROPEAN DISTRIBUTION SYSTEM AIRCRAFT

QUESTION: Please provide a schedule of expected deliveries of the 18 European Distribution System aircraft and apportionment of the 5,116 flying hours planned for FY 84.

ANSWER: The 18 European Distribution System aircraft are scheduled to be delivered at a rate of approximately 1.5 aircraft per month over a ten month period beginning the month after the first two aircraft are delivered. The flying hours will be apportioned on a quarterly basis commensurate with aircrew and airframe availability:

1st Quarter - 364 hours

2nd Quarter - 1092 hours

3rd Quarter - 1647 hours

4th Quarter - 2013 hours

This flying hour schedule was developed based on the delivery schedule noted above and assumes first aircraft delivery in October 1983. However, due to an unanticipated delay in the release of the formal request for proposal first aircraft delivery will not be made until the fourth quarter FY 84. The quarterly apportionment outlined above will adjust accordingly and reflect fourth quarter FY 84 and the first through third quarters FY 85.

DECLINE OF C-130 AND HELICOPTER FLYING HOURS

QUESTION: The schedule of decreases demonstrates a reduction of $7.7 million associated with a decline in C-130 and helicopter flying hours based on improved simulator use and student load estimate reductions. However, based on the average cost per flying hour for C-130 aircraft, the savings appear to be understated by at least $1 million, irrespective of the helo reduction of 1,459 flying hours. Provide the estimates and calculations used to derive the $7.7 million.

ANSWER: The mission support activity group only funds that portion of the cost per flying hour related to AVPOL and maintenance supplies. The calculation is shown below:

A/C	Flying Hours	Rate	$Mil
C-130	6171	1106	$6.814
TH-IF	282	282	.080
UH-IN	293	252	.074
CH-3E	331	439	.145
CH-53	553	990	.547
			$7.660

Depot maintenance adjustments are included in Major Force Program 7, but are not separately highlighted in the program decreases narative.

INCREASE OF MILITARY PERSONNEL

QUESTION: Please provide further justification for the increase of 278 military personnel in support of EDS aircraft to describe missions, cost factors, and proposed duty stations.

ANSWER: EDS is a logistics program which will augment the Air Force logistics system in Europe to assure the timely distribution of spare parts for aircraft. The increase of 278 military spaces listed below are required to support 16 additional aircraft performing the EDS mission:

Function	Manpower Cost	Comment
Crew	144	16 aircraft x 3 crew members per aircraft x 3.0 crew ratio
Squadron Overhead	8	
Maintenance	126	Air Force personnel will perform organizational level maintenance only. All other maintenance will be performed by the contractor.
	278	

All 278 personnel will be assigned to Zweibrucken Air Base, West Germany.

Cost factoring for increased end strength is done using a "midpoint" assumption developed and agreed to by OBM/OSD and the Services, e.g., "It takes 6 months to get end strength on or off Air Force roles or to or from an Air Force activity." Since the EDS System manpower is a new increase of 278 end strengths to this activity, they are priced at one-half a manyear, as follows:

	EDS AIRCRAFT COSTING, 1984			$ Cost
	End Strength	Manyears	Annual Cost Factor	($ in M
Officer	104 divided by 2=	52	x $36,443	$1.9
Enlisted	174 divided by 2=	87	x $16,261	$1.4
Total	278	139		$3.3

The above example is portrayed for purposes of clarity and demonstration of the budget assumption used in developing Military Personnel costs.

OTHER PERSONNEL SUPPORT

QUESTION: The peformance criteria for base operations support a relatively stable program, but at an increase of over $12.5 million. As the scheduled increases do not appear to support this increased requirement, is there any other justification to support the $69 million requirement for other personnel support?

ANSWER: The increases and decreases totalling $12.5 million are listed below:

	($ Mil)
ADP increase (Phase IV)	$+10.1
Price Change	$ .9
DOD stock fund acct. change	$ .6
Goose Bay	$ .6
Mobility equipment	$ .5
Civilian end stength reduction	$- .2
	$ 12.5

A detailed explanation of each item listed above is contained in Force Program IV, Base Operations Activity Group, Sect III B. Reconciliation of increases and decreases.(pages 323, 324, and 325 of the justification book).

AIRLIFT BASE OPERATING SUPPORT

QUESTION: Provide further justification for the increase of 268 military workyears for airlift base operating support.

ANSWER: Actual and authorized military end strengths for the two previous fiscal years are the basis for deriving workyears. The workyears are separately computed for officers, enlisted and cadets by determining the midpoint between each fiscal year's authorized or actual end strength and the authorized end strength for the fiscal year for which workyears are being determined. The resultant midpoint is then multiplied by an appropriate phasing factor to determine projected workyears and meet dollar limitations approved by OSD; e.g., Officer Manpower Computation follows:

BOS Airlift
Calculation of Officer Manyears

FY 1982 End Strength	770	
FY 1983 End Strength	1,091	
Total	1,861 ÷ 2 =	930.5
x a phasing factor		x .999029
FY 1983 manyears		930

FY 1983 End Strengths	1,091	
FY 1984 End Strengths	1,095	
Total	2,186 ÷ 2 =	1,093
x a phasing factor		x .999116
FY 1984 manyears		1,092

The above example is provided to explain the difference between increased strengths from 1983 to 1984 (officer +4) and workyears 1983 to 1984 (officer +162 workyears) provided on page 334 of the President's budget. These workyears are required to support end strength changes (on page 335) and the program planned for FY 1984.

DEPOT MAINTENANCE

QUESTION: The descriptive summary for an increase of $7.3 million in support of the Minuteman missile demonstrates a decline of 17 units in FY 1984 over the prior year program, and a reduction in total labor

costs. Why is the funding increasing in view of the declining maintenance requirements?

ANSWER: The contractors costs for labor to washout motors and the cost of materials used in the washout have increased in FY 1984 over FY 1983. After removing the cost increase associated with the approved 5.1% inflation factor, the labor cost program growth associated with each motor washout is approximately $58,000. So even though the quantity of motors to be washed out decreased by 17 motors, the total program labor cost will remain relatively constant at approximately $24.5 million in FY 1983 (escalated to FY 1984 dollars) and $24.4 million in FY 1984. Further, the material procurement lead time has decreased from two years to one year. Because of this decrease, the quantity of materials to be purchased in FY 1983 was reduced to 36 units. We will purchase 76 units of material in FY 1984. Accompanying the increased quantity of materials is an increase in the cost (inflation removed) of materials per unit of approximately $22,000. Thus, the total program material cost in FY 1983 (escalated to FY 1984 dollars) is approximately $5.1 million and $12.5 million in FY 1984.

Total program cost in FY 1983 (escalated to FY 1984 dollars) and FY 1984 is projected to be $29.6 million and $36.9 million respectively, with program growth of $7.3 million.

COMPONENT REPAIR REQUIREMENTS

QUESTION: Is the increase of $58.6 million for component repair requirements driven by increased FY 1984 flying hours or prior year flying hour increases?

ANSWER: The $58.6 million for component repair requirements is driven by increased FY 1984 flying hours.

BREAKOUT OF COMPONENT REPAIR BY AIRCRAFT

QUESTION: Provide a breakout of the increased component repair requirement by aircraft type. Explain the methodology used to establish the increase, and summarize the types of components which command the increased funding.

ANSWER: A breakout of the increased repair requirements by aircraft type is as follows:

A-10	$ 308,000
C-135	2,569,000
E-3	1,341,000
F-15	22,066,000
F-16	28,086,000
F-111	2,618,000
T-38	1,590,000
TOTAL	$58,578,000

The requirements increase reflected above represent program growth. This program growth is computed by taking the real dollar change between FY 1983 and

FY 1984 and then dividing the change into its price (inflation) and program growth segments. The size of the program growth is influenced by requirements changes within and among the various weapon systems. Primary drivers of real dollar changes include flying hours, force structure, stock level adjustments, frequency of repair, new items entering the inventory and component modifications. These variables impact the full range of components repaired, with more emphasis placed on avionics and electronic components.

INCREASED ENGINE MAINTENANCE REQUIREMENT

QUESTION: An additional $17.3 million was funded in the FY 1983 program to accommodate the increased engine maintenance requirement of 665 F-100/200 engines. How is it that a comparatively smaller increase of 117 units in FY 1984 demands an increase of $10 million?

ANSWER: During the early period of the F100 engine life, the cost to repair engines and modules was relatively low. However, as the fleet gets older and more cycles are accumulated more maintenance, parts and inspection time is required. This trend is reflected in the increasing Direct Product Standard Hours (DPSH) required to repair F100 engines and modules. For example, the repair of the inlet fan module on the F100-100 engine (F-15) required 193 DPSH in FY 1981. The DPSH forecast for repairs of this module in FY 1984 has increased to 342 DPSH. The DPSH's on the F100-100 engine and modules have increased by 324 between FY 1983 and FY 1984. This increase is mainly due to increased TCTO activity, increased cycle inspection, 2300 to 3600 cycles on the core module and 1800 to 3600 cycles on the fan rotor. The core rotor must be completely disassembled, destacked and debladed. All parts will require non-destructive inspection. The fan module will be destacked and debladed and all parts will be subject to increased inspection requirements. This increased level of activity has a direct relationship with projected engine sales prices. The FY 1983 sales prices were based on FY 1981 cost experience plus factored inflation and FY 1984 prices were based on FY 1982 cost, again with factored inflation. As repair costs in FY 1981 were comparatively low, FY 1983 sales prices established on this baseline were understated and resulted in a loss to the Depot Maintenance Industrial Fund (DMIF). When the FY 1984 sales rates were established using FY 1982 cost baseline, engine and modules cycles accumulated and the cost to repair, including material usage began to increase and this is reflected in the FY 1984 sales prices. The FY 1984 price includes costs to recover total Industrial Fund losses prior to FY 1984.

J79-17 ENGINE MAINTENANCE

QUESTION: Funding has steadily increased for J79-17 engine maintenance to extend operating time between overhauls. Why is this requirement doubling to $6.3 million at a time when F-4 aircraft are being moved from the active aircraft inventory?

ANSWER: The J79-17 engine powers the F-4 E/G aircraft. These aircraft are scheduled to remain in the active inventory through the 1990s. The increase in requirements for this engine is due to the unit sales price increase of $39,481 over the FY 1983 unit cost. The majority of this sales price increase, $25,168 for material and $5,381 for labor, is due to the J79-17 engine enhancement effort currently in progress called "Pacer Frugal". This enhancement program consists of replacing compressor components and the rear stator case. The program will double the Maximum Operating Time (MOT) from 900 to 1800 sorties and will result in a large reduction of overhauls during the FY 1987 to FY 1992 time period.

B-52D PDM INPUTS BUDGETED

QUESTION: In FY 1983, $3.2 million was budgeted to accommodate the input of five additional B-52D aircraft. How many B-52D PDM inputs are budgeted in FY 1984?

ANSWER: B-52D aircraft are scheduled to be phased out of the active inventory by the end of FY 1983. As a result, all programmed depot maintenance (PDM) and modification installations for FY 1983 have been discontinued, and only safety related maintenance will be accomplished the remainder of this fiscal year. There are no PDM inputs budgeted in FY 1984.

EC-135 AIRCRAFT

QUESTION: The justification material demonstrates a decline of $1.3 million as no EC-135K aircraft are planned for PDM input. However, $3.8 million was appropriated in FY 1983 to accomplish EC-135K aircraft PDM. Consequently, are the savings reported in the FY 1984 justification material understated?

ANSWER: The savings reported in the FY 1984 justification material are not understated. The $3.8 million program growth in the FY 1983 justification material included PDMs for EC-135A, EC-135K and WC-135B aircraft. Both the EC-135A and WC-135B have PDMs planned for FY 1984. The $1.3 million decrease in the FY 1984 program is a result of reducing the EC-135K PDMs from two in FY 1983 to none in FY 1984.

B-1B INTERIM CONTRACTOR SUPPORT

QUESTION: Why is $4.4 million budgeted in FY 1984 to begin B-1B aircraft interim contractor support well ahead of aircraft deliveries?

ANSWER: The $4.4 million is required to fund the contractor's start up cost and procurement of contractor acquired repair parts (CAP) to ensure support for repair requirements that will begin generating in FY 1985 and increase in FY 1986 as aircraft are delivered. Lead time for these requirements necessitates FY 1984 funding.

"PAVE MINT" ICS

QUESTION: Please explain the $5.4 million increase for the so-called "pave mint" interim contractor support new start.

ANSWER: The B-52 PAVE MINT Program is a Quick Reaction Capability program designed to minimize the time interval between the recognition of a new ECM threat and the fielding of an operational ECM capability to counter or negate it. This requirement creates a highly concurrent development and production program. Because of this, support equipment and test equipment will not be available for support of delivered production items. The $5.4 million will fund the contractor's start up costs to ensure support for repair requirements that will begin generating in FY 1984 and increase in FY 1985. The first two aircraft will be modified in FY 1984 and 29 aircraft are scheduled for modification in FY 1985.

REPAIR OF GROUND ENGINES

QUESTION: There appears to be a projected decline of over 350 ground engines to be repaired in FY 1984; a 40 percent decrease in the program. What are the savings associated with this decrease and why are they not reflected in the schedule of increases and decreases?

ANSWER: The reduced requirements for ground turbine engines was addressed in the FY 1984 justification material on page 373 citing the GTC 85-70 engine for the MA-1A ground power cart with a savings of $962,000 for this engine. Some decreases in the number of other types of units resulted in a net increase in funding requirement because of increased FY 1984 Depot Maintenance Industrial Fund sales prices. These increases are reflected in the schedule of increases under other increases.

KC-135 MODERNIZATION

QUESTION: An increase of $16.3 million is budgeted to reflect an increase in the KC-135 reengining program and life extension structure modification increases. Assuming the authorization is not provided for the multi-year contracting of reengining work, does the Air Force still intend to accelerate the inputs of KC-135 aircraft for CFM-56 reengining? If not, what is the budgetary impact?

ANSWER: Modification kits for the FY 1984 installations of CFM-56 engines on KC-135 aircraft have already been purchased. Therefore, the planned increase in the KC-135 reengining program for FY 1984 would not be impacted should authorization not be provided for multi-year contracting of the reengining work.

EF-111 TACTICAL JAMMING SYSTEM

QUESTION: Last year, an additional $11.4 million was appropriated for an increase of four EF-111 tactical jamming system aircraft modifications. In FY 1984, $14.7 million is requested for three aircraft modifications of the same nature. Why is the unit cost of these mods increasing from an average of $2.8 million to over $4.9 million?

ANSWER: The $11.4 million and $14.7 million in FY 1983 and FY 1984, respectively, represent only the program growth for the EF-111 tactical jamming system (TJS) modification for those two years. Dividing these values by the net quantity variances in the modification schedules does not yield valid unit costs; thus, the $2.8 million and $4.9 million in question are not a correct expression of unit cost increases. The unit cost growth between FY 1983 and FY 1984, expressed in constant FY 1984 dollars, is less than $34 thousand and not $4.9 million.

A review of the total requirements is required to observe and compare unit costs. The data below shows how the EF-111 TJS unit cost growth should be computed.

Fiscal Year	Qty	Unit Cost*	Total Cost*
1984	15	$4,767,200	$71,508,000
1983	12	4,733,600	$56,803,200
Growth	3	33,600	$14,704,800

* Expressed in FY 1984 constant dollars.

MODIFICATION PROCESSING UNITS

QUESTION: Last year, additional funds were provided to accommodate additional increases up to 615 modification processing units. In FY 1984, $2 million is requested for such increases again, yet the baseline is justified for FY 1983 as 286 modification processing units. What is the explanation for discrepancy in the figures?

ANSWER: The estimate of 615 modification units in FY 1983 was reduced to 286 units after the FY 1983 President's Budget (PB) was submitted. The reduction of units and required funding was the result of moving the costs of two modification programs from the Minuteman Program into the exchangeable component repair program. The modifications are to components, rather than the missiles themselves. The FY 1983 baseline estimate in the FY 1984 PB was adjusted to accurately reflect the current requirements. Reducing the FY 1983 baseline results in program growth between FY 1983 and FY 1984. The PB would have reflected negative program growth if these adjustments had not been made.

INSTALLATIONS FOR B-52 AIRCRAFT

QUESTION: In FY 1983, the baseline for B-52 modifications was increased over $9.1 million to reflect 62 OAS installations and 40 CMI installations. Since the justification material does not demonstrate a program decrease, should the Committee assume that this same level of installations for B-52 aircraft will remain at the FY 1983 rate?

ANSWER: FY 1984 planned installations for the Offensive Avionics System (OAS) and Cruise Missile Integration (CMI) modifications are 63 OAS and 37 CMI, as follows:

	OAS	CMI
B-52G	40	36
B-52H	23	1
	63	37

The OAS mod is scheduled to be completed on both the B-52G and B-52H during FY 1986. The CMI mod is scheduled to be completed on the B-52G during 1984, but will continue through FY 1988 on the B-52H. Since the CMI mod begins on the B-52H as it completes on the B-52G, funding requirements are projected to remain at or slightly above the FY 1983 level through FY 1985. Program decreases should occur in FY 1986 and FY 1987 based on current projections.

MODIFICATIONS FOR F-15

QUESTION: Similarly, update modifications for the F-15 required a baseline increase of $21.4 million to accommodate substantial increases in modifications. The same holds true for the C-5 wing mod installations which were projected to increase to 15 aircraft in FY 1983. In both cases, no reductions or decreases have been reflected in the justification material. Please provide for the record a listing of the modification program planned in FY 1984 as compared to FY 1983 for the F-15 and C-5 aircraft.

ANSWER: Installation requirements for F-15 and C-5 aircraft modifications are projected to remain relatively constant through FY 1986. 18 wing mod installations per year are projected for C-5 aircraft from FY 1984 through FY 1986, with a final two installations to be initiated in FY 1987. Installations of all the major modifications to the F-15 aircraft are scheduled to continue at FY 1983/1984 levels through at least FY 1985, with some, such as the foam mod, continuing through FY 1987. The planned FY 1983 and FY 1984 F-15 and C-5 modification programs, in constant FY 1984 dollars, are:

	FY 1983 $(000)		FY 1984 $(000)
F-15 Mods			
VSD Roll Yaw	4029		2180
Fuel Control	5614		2259
UHF Radio TACAN	0		9139
Foam	5083		4885
Improve Braking	3552		1675
Main Landing Gear	5480		2422
SPS Analyzer	2725		3011
Patch Nacelle	1582		1576
Miscellaneous Mods	5335		1923
Mod Processing	10313		13427
TOTAL	43713		42557
C-5 Mods			
Fuel Savings Advisory	90		0
Wing Mod	100660	*	102727
Miscellaneous Mods	4		0
TOTAL	$100754		$102727

* This omits $12M for kit installations scheduled for October 1983 (FY 1984) based on the recent contract maintenance policy change which permits contracting for a 12-month period that crosses fiscal years. The C-5 wing mod contract runs from November 1982 through October 1983.

AIR FORCE FLIR/LANTIRN

F-18 FLIR

QUESTION: Please provide for the record a side-by-side technical comparison of LANTIRN with the "Advanced" F-18 FLIR system. Please address the following technical characteristics:

- FLIR Resolution
- Field-of-View
- Aperture
- Missile Boresight Correlator
- Memory Capacity of Pod Computers
- State-of-the-Art of Target Recognizer
- Packaging
- Support Equipment Definition
- Shots per Pass
- Automatic Tracker

ANSWER:

	Ford targeting pod	Martin targeting pod
FLIR Resolution	Smaller detectors provide resolution better than F-18 FLIR pod. No further improvement likely because it requires a major change to increase aperture size	Larger aperture (8 inch) provides resolution as good as Ford targeting pod; further improvement possible through smaller detectors

Field-of-View (Narrow FOV)	1.75°x1.75°	2.25°x2.25°
Aperture	6 inch diameter	8 inch diameter
Missile Boresight Correlator	Contractor plans to include, but no design completed for accomplishing within the space available. Capabilities anticipated by contractor are based on Air Force results with LANTIRN missile boresight correlator	Yes; designed and tested in laboratory. Full system test to be completed by Jul 83
Memory Capacity of Pod Computer	3 processors with 36K memory; expandable to 72 K	12 processors with 244K memory
State-of the Art Target Recognizer	No target recognizer being developed	Breadboard processor built and operating
Packaging	Power and space available in proposed module expansion will require advanced technology for missile boresight correlation and target recognizer electronics	Developmental pod successfully built and in integration testing
Support Equipment Definition	Would rely on adapting Modular Automatic Test Equipment being planned for LANTIRN; specific design yet to be defined	Support Equipment is on contract for Full Scale Development; design review scheduled mid FY 84
	Ford targeting pod	Martin targeting pod
Shots per Pass	One shot per pass. Growth capability to more shots per pass dependent on building a target recognizer within size, power limits. In addition, analog video input (versus digital input for LANTIRN target recognizer) may preclude significant improvement in shots per pass	Targeting pod without target recognizer will provide one shot per pass. Target recognizer, if incorporated, will use digital video from Martin FLIR for automatic recognition and launch of up to five targets per pass
Automatic Tracker	Single mode tracker limits tracking for only those scenes with distinct targets	Dual mode tracker allows tracking of scenes with or without distinct targets

COST FOR UPGRADE

QUESTION: What is the precise cost for upgrading the F-18 FLIR, pursuant to the legislative direction of the Armed Services Committees?

ANSWER: The projected cost impact of upgrading the F-18 FLIR

for a targeting pod competition would be a net increase of approximately $160 million in RDT&E and of $60 million in procurement. This estimate is based on confidence level IV planning data.

ENGINEERING AND DESIGN CHANGES

QUESTION: What is the extent of the engineering and design changes required for the F-18 FLIR to give it a LANTIRN capability?

ANSWER: To modify the F-18 FLIR with a LANTIRN targeting pod capability would require extending the pod an additional 26 inches (approximately 30%). New units to be added would be laser designator (already under development by Navy), environmental control unit, and missile boresight correlator. Some changes may also be required in aircraft interface, pod computing capacity, automatic tracker, and pod support equipment.

IMPACT OF COMPETITION

QUESTION: What is the impact of the proposed competition on the proliferation of pods?

ANSWER: The proposed competition between the LANTIRN targeting pod and a modified F/A-18 FLIR would require development of another pod which would be different from the existing F/A-18 FLIR. Although the F/A-18 FLIR contractor has projected at least 70% commonality between the F/A-18 FLIR pod and the modified version, the modules to be added to the existing F/A-18 FLIR for cooling and boresight correlator would be unique from any Navy system.

In addition, if the modified F/A-18 FLIR pod were selected, currently planned subsystem commonality between the LANTIRN navigation and targeting pods would not be possible.

COMPUTER CAPACITY

QUESTION: Does the computer capacity of the F-18 targeting pod leave extensive or little margin for growth in processing capability?

Will the F-18 targeting pod be capable of automatic tracking on scenes with or without distinct targets?

ANSWER: The F-18 targeting pod (modified F-18 FLIR) will have memory capacity of 72K words, as compared to LANTIRN memory capacity of 244K words. In addition, the architecture of the F-18 targeting pod software leaves little margin for growth in processing capability.

The automatic tracker in the F-18 targeting pod is expected to have little capability for tracking on scenes without distinct targets because of the limitations imposed by not having area track or multiple track functions.

MISSILE BORESIGHT CORRELATOR

QUESTION: Does the F-18 targeting pod design include enough space for the missile boresight correlator?

ANSWER: The F-18 targeting pod (modified Ford Aerospace F/A-18 FLIR) unsolicited proposal to the Navy includes provisions for the missile boresight correlator. Although the Air Force has not formally evaluated the proposal, it appears very likely that

additional space, weight and power would be required before an effective missile boresight correlator could be incorporated into the F-18 targeting pod.

SUPPORT EQUIPMENT

QUESTION: Has the support equipment for the F-18 targeting pod been fully defined?

ANSWER: No. The Ford Aerospace unsolicited proposal which was provided to the Navy in October 1982 did not include definition of support equipment for the Modified F/A-18 FLIR (F-18 targeting pod).

COMPARATIVE CAPABILITY

QUESTION: What is the comparative capability, in terms of shots per pass, between the LANTIRN targeting pod with a target recognizer and the F-18 targeting pod with a target recognizer? Does the analog video input of the F-18 target recognizer preclude significant improvements in shots per pass capability?

ANSWER: Although the automatic target recognizer for the LANTIRN targeting pod is only in advanced development, our projections are that it could provide a capability for attacking up to five targets per pass.

The Air Force has not formally evaluated the Ford Aerospace modified F/A-18 FLIR unsolicited proposal presented to the Navy Oct 82. However, the video word output of an analog FLIR such as the F/A-18 FLIR is inherently less accurate than is the output of the digital FLIR being incorporated into LANTIRN pods. For that reason, if a target recognizer were added to the modified F-18 FLIR (F-18 targeting pod), it may not significantly improve the number of shots per pass.

In addition, the single mode automatic tracker in the F-18 targeting pod may not provide reliable tracking of targets against a variety of backgrounds.

Consequently, it is not likely that the F-18 targeting pod could successfully attack five targets per pass.

CASE FOR LANTIRN

QUESTION: The LANTIRN program has been restructured to provide for deployment of this night navigation and fire control system on the Dual Role Fighter. This decision increased projected LANTIRN pod set production from 300 to 720.

We would expect that by increasing production, unit costs would decrease. Is this the case for LANTIRN?

ANSWER: At the time of the FY 1983 President's Budget, program unit acquisition cost of LANTIRN (in Then-Year dollars, excluding the Automatic Target Recognizer) was estimated to be $5.6 million for a projected buy of 304 pod sets plus six development sets. The total program has been capped at $2.26 billion (FY 1980 dollars), resulting in a total of 658 pod sets which can be procured within the funding profile of the FY 1984 President's Budget.

The estimated program unit acquisition cost in the FY 1984 President's Budget is $5.8 million for 658 pod sets plus six development sets. A planned adjustment in monthly production rate

will increase the quantity procured to 710 pod sets within the same program cap of $2.26 billion at a program unit acquisition cost of $5.3 million per pod set.

These estimates are based on confidence level II mature data, which is defined to be an in-depth evaluation of over 60 percent of cost elements (a baseline estimate).

COST ESTIMATE FOR LANTIRN

QUESTION: The Committee has learned that the December 1982 Independent Cost Assessment for LANTIRN shows that total program cost will exceed prior estimates and the approved budget of $3.98 billion for 720 pod sets.

Please outline the August 1982, December 1982 (ICA) and current program cost estimates for LANTIRN.

ANSWER: During the FY 1984 budget cycle, funding was added to allow the total LANTIRN quantity buy to increase from 300 to 720 production pod sets. This increase in quantity resulted in a total program cost estimate in August 1982 of $3.98 billion. However, a new Air Force cost estimate was completed in December 1982, reviewed by the Air Staff, and briefed to Secretary of the Air Force on February 8, 1983. The new production cost estimates which were higher than previous estimates, were the basis for the December 1982 SAR submitted to Congress.

As a result of the new cost estimate, a decision was made to cap the LANTIRN program at $2.26 billion (Base Year 1980 dollars). Within the constraints of this program cap and the funding profile of the FY 1984 President's budget, a total of 658 LANTIRN pod sets (excluding automatic target recognizer) can be procured. However, Air Force planning for increasing production rate to a more economical quantity will result in a total buy of 710 pod sets which can be procured within the same program cap.

MAJORITY OF COST GROWTH

QUESTION: Where is most of the cost growth coming -- in development or production?

ANSWER: The total program cost for LANTIRN increased from $1.8 billion in the FY 83 President's Budget to $3.8 billion in the FY 84 President's Budgets. Less than 4% of this increase is attributable to changes in the development estimate. The other 96% is for production of an increased quantity of pods and for changes in pod set unit estimates.

LANTIRN POD UNIT COST INCREASE

QUESTION: Has LANTIRN pod unit cost increased, in terms of constant FY 1980 dollars?

ANSWER: In terms of constant FY 1980 (Base Year) dollars, there has been an increase of approximately 10% in the estimate of pod set unit flyaway cost. At the time of the FY 1983 President's Budget, the LANTIRN pod set (excluding automatic target recognizer) unit flyaway cost in Base Year 1980 dollars was estimated to be $1.6 million. The unit flyaway cost, as expressed in the December 1982 Selected Acquisition Report, is $2.0 million. However, based on Air Force plans to increase production rate and acquire a total

of 710 pod sets within the program cap of $2.26 billion (FY 1980 dollars) this unit flyaway cost is projected to be $1.7 million.

These estimates are based on confidence level II mature data.

DELIVERY OF TARGET POD

QUESTION: When will the targeting pod be delivered?

ANSWER: The first developmental targeting pod is scheduled for delivery in July 1983.

BEGIN FLIGHT TEST

QUESTION: When will the Air Force begin to flight test the targeting pod on the F-16?

How many flight tests are to be conducted in FY 1984?

ANSWER: The targeting pod will be ready to begin flight testing in October 1983.

Flight testing of the navigation pod will begin in July 1983. A total of 374 sorties for testing both pods are planned to be conducted during FY 1984.

FIRM DATE FOR PRODUCTION CONTRACT

QUESTION: Has the Air Force given the LANTIRN prime contractor a firm date to negotiate the production contract?

Is the development program within cost and on-schedule?

ANSWER: The Air Force is preparing to request formally that the prime contractor submit firm production options before February 1984.

The development program is proceeding within cost and on schedule as defined by the firm fixed price contract agreed to with the prime contractor in late FY 1981.

TECHNICAL STATUS OF HEAD-UP DISPLAY

QUESTION: What is the technical status of the LANTIRN Head-Up Display?

ANSWER: The wide angle raster Head-Up Display (HUD) for the A-10 was determined to be satisfactory during flight tests which were completed in December 1982. The wide angle raster HUD for the F-16, which was unsatisfactory for day operations but satisfactory for night operation, is being redesigned for the correct eye-to-lens distance. It will be tested beginning October 1983 along with LANTIRN navigation and targeting pods.

COMPREHENSIVE EXPLANATON OF CHANGES

QUESTION: Please provide a comprehensive explanation of changes in LANTIRN development and production cost estimates since last year.

ANSWER: Total development costs (excluding automatic target recognizer) were estimated to be $468 million in the FY 1983 President's Budget and $516 million in the FY 1984 President's Budget. Increases in total development are attributed primarily

to the transfer of depot support equipment software funding from procurement to R&D, an increased estimate for A-10 flight test startup costs and the redesign of the F-16 Head-Up Display (HUD) to ensure compatibility with day air-to-air missions.

The major factor affecting procurement cost estimates, which increased from $1,343 million in the FY 1983 President's Budget to $3,274 million in the FY 1984 President's Budget, was the increase in quantity of pod sets being procured. The estimate last year was based on a buy of 304 pod sets, while the estimate as reported in the December 1982 Selected Acquisition Report is based on a buy of 658 pod sets. A second factor affecting procurement costs was the use of an updated cost model to revise the program estimate.

An outcome of the new program cost estimate was the decision to increase the pod set production rate from 12 pod sets per month to 16. This change to a more efficient production rate will allow procurement of a total of 710 pod sets within the same total program cap of $3.8 billion.

These estimates are based on confidence level II mature data.

POTENTIAL COST OFFSETS

QUESTION: What potential cost offsets have been identified to keep LANTIRN cost growth down? Are multi-year procurement and an increase in the monthly pod production rate being considered?

ANSWER: The production rate of LANTIRN pod sets is planned to be increased from 12 per month to 16 per month. The economies resulting from this action will allow a total of 710 pod sets to be procured for the same total program cost as had been projected for procurement of 658 pod sets within the funding profile of the FY 1984 President's Budget. Multiyear procurement of LANTIRN is not programmed at this time.

DELETION OF ATR

QUESTION: Is deletion of the Automatic Target Recognizer (ATR) from the program being considered?

ANSWER: The Automatic Target Recognizer (ATR) is being continued through FY 1984 in advanced development. The maturity of ATR technology will be assessed at that time and a determination will be made on plans for full scale development and production.

The targeting pod has been designed to incorporate the ATR as a preplanned product improvement when the ATR technology has been proven to be mature.

REDUCTION IN POD SET PROCUREMENT

QUESTION: Is reduction in pod set procurement from the current objective of 720 being considered?

ANSWER: The Air Force has capped the LANTIRN total program at $2.26 billion (Base Year FY 80 dollars). Although that cap reduces to 658 the number of pod sets which can be produced within the funding profile of the FY 84 President's Budget, the Air Force is planning to increase the production rate and thereby achieve a total quantity of 710 within the $2.26 billion.

COST TO COMPETE LANTIRN PROGRAM

QUESTION: How much would it cost to compete the LANTIRN program, by qualifying and facilitizing a second source for pod production?

ANSWER: Approximately $180 million would be needed to qualify and facilitize a second source for targeting pod production. This estimate is based on confidence level IV planning data, which is defined as an analysis of selected key cost elements (preliminary estimates).

COST-EFFECTIVE

QUESTION: Given the number of pods to be procured (710) is this considered cost-effective?

ANSWER: Incorporation of the Leader/Follower approach in procurement of 710 LANTIRN targeting pods is estimated to result in total program net savings of approximately $25 million. This estimate is categorized as level IV planning data.

REAL ECONOMIES

QUESTION: Are there any real economies to be found in the so-called "leader-follower" approach to this program, given its relatively limited procurement?

ANSWER: The incorporation of a "leader-follower" approach in LANTIRN production could provide competitive incentives throughout the production program. The existence of competition could serve as additional leverage against cost increases as the program progresses through the latter stages of targeting pod procurement, and product improvements would benefit from the broader industrial base available through two contractors producing the system. Based on Category IV planning data (preliminary estimates), we estimate the potential total program savings of a "leader-follower" approach would exceed $25 million in Then Year dollars. In addition, the cost savings of a "leader-follower" approach would be even greater if the quantity of LANTIRN pod sets increases beyond the current number planned.

TECHNICAL CAPABILITY OF MODIFIED F-18 FLIR

QUESTION: What is the Air Force's understanding as to the technical capability of a modified F-18 FLIR to compete with LANTIRN? At this point in time, how much time would it take for the F-18 FLIR to be upgraded to an equivalent capability of LANTIRN? How much would this cost?

ANSWER: A Ford Aerospace unsolicited proposal for a modified F-18 FLIR submitted to the Navy in October 1982 has not been formally evaluated by the Air Force. However, it is our assessment that the modified F-18 FLIR could not achieve LANTIRN capability without major adjustments in space, power and weight. On the basis of the contractor unsolicited proposal, the earliest a flyoff with the modified F-18 FLIR could occur is September 1985. Total development cost for this effort is estimated to be approximately $160 million, based on confidence level IV planning data.

NAVY R&D FUNDING

QUESTION: Does the Navy have any R&D funding in its FY 1984 budget to upgrade the F-18 FLIR to give it a LANTIRN capability? Has the Navy identified any requirement to do so?

ANSWER: The only R&D funding the Navy has in its FY 1984 budget to upgrade the F-18 FLIR is for laser designator development.

The Navy has informed the Air Force that they have no requirement to modify the existing F/A-18 FLIR pod beyond addition of the laser designator.

AIR FORCE RESEARCH AND DEVELOPMENT

MAJOR BUDGET INCREASES

QUESTION: For FY 1984 Air Force R&D Budget is $3 billion more than last year's appropriation for a real growth of over 23 percent. Aside from the increase for MX, identify what other programs are responsible for these major budget increases?

ANSWER: The 28.5 percent increase includes the effects of inflation. The real growth in the RDT&E account is 22.4 percent. In terms of dollars, the account has increased by $3.026 billion. Of this increase, $873 million or 28.8 percent is related to Peacekeeper; $963 million or 31.8 percent is in classified programs; and the remaining $1.19 billion or 39.4 percent is spread across the remaining 199 programs.

Of the $1.19 billion, $187 million is in the technology base area and the remainder is all program specific research and development.

This increase is necessary to allow us to pursue emerging technologies, incorporate technological improvements into our programs, and field systems which can better meet the sophisticated and growing threat.

INCREASES FROM CLASSIFIED STRATEGIC PROGRAMS

QUESTION: Are most of the increases coming for classified strategic programs stopped? Major funding increases are also requested in many strategic C^3 programs. Please present an outline of all the major budget increases for the following C^3 programs: MILSTAR, GWEN, Over-the-Horizon Back Scatter Radar, Dew Line, and the Minimum Emergency Essential Communications Network (MEECN).

ANSWER: The Air Force continues an aggressive program in the C^3 area to respond to the October 1981 President's priority initiative which was to upgrade our national C^3 systems. Those dollars which are required to meet the objectives of the President's C^3 initiatives are shown below for the programs you requested.

	FY 83	FY 84	REASON
MILSTAR			
RDT&E	117.6	149.9	Continue Full Scale Development phase with front end engineering and concept design work.
OTH-B			
RDT&E	77.1	99.1	Continue upgrade of experimental
Procurement	0.0	194.3	radar system to fully operational
Other	1.4	12.1	configuration. R&D funds buy the
Total	78.5	305.5	first 60° sector. Procurement funds buy the last two 60° sectors to complete east coast 180° radar system.
DEW			
RDT&E	8.0*	31.3	Continue DEW Line improvement pro-
Procurement	0.0	92.6	gram. Eliminate critical gaps in
Other	94.6	118.1	North American air defense surveil-
Total	102.6	242.0	lance and amortize investment in three years. R&D funds develop short range unattended radar. Procurement funds buy 11 off-the-shelf minimally attended radars.
MEECN (RDT&E)			
VLF/LF			
Improvements	39.2	46.0	Start development of an improved
Adaptive HF	2.4	11.7	trailing wire antenna for the air-
GWEN	8.0	74.6	borne command post. Start of con-
Total	49.6	132.3	cept validation phase of an adaptive HF radio. Fabrication and deployment of the GWEN protoytpe network.

* Funds being requested in FY83 Congressional reprogramming.
NOTE: Procurement amounts include funds for spares.

MILSTAR IOC

QUESTION: Has the Milstar IOC slipped?

ANSWER: OSD directed the Air Force to achieve an IOC of (d) for MILSTAR. After we completed preliminary designs and obtained proposals from the industry, it became clear that we were trying to do too much in a short period of time. Therefore, the Air Force, in concert with the Army, Navy and other users, relaxed some of the earlier requirements (including moving the IOC [deleted] to assure that we could meet the critical near-term needs within budget, with a very high probability of success.

FIRM COST ESTIMATES FOR MILSTAR

QUESTION: Can you now submit to the subcommittee firm cost estimates for the Milstar program?

ANSWER: We have provided cost data based on our early esti-

mates for the program. This data is currently being refined through Independent Cost Estimates (ICE's) being done for the satellite and terminal programs to incorporate the results of the concept validation studies. These ICE's are expected shortly. In addition, contract negotiations will begin in April for the satellite program and in May for the Air Force terminal program which will further refine program cost estimates. These data will be available in the June/July time frame.

FUNDING TRANSFER

QUESTION: You have shifted funding for Milstar terminals from the Milstar R&D line to the Air Force Satellite Communications System line. But you do not identify this cost in the program description summary. How much funding transferred from Milstar to the AFSATCOM program is actually related to Milstar terminals?

ANSWER: All of the funds transferred from the MILSTAR program to the AFSATCOM program are related to MILSTAR terminals. These funds will provide for Air Force MILSTAR terminal development and production of both Air Force terminals and mission control equipment. The amounts transferred were:

	FY84	FY85
R&D	$112.8M	(deleted)
Production	0	(deleted)

CHANGES IN FUNDING INCREASES

QUESTION: The budget for VHSIC nearly doubles in FY 1984 from $66 million to $125 million. The department has also added $237.4 million to the FY 1984 - 1989 projection. Can you describe to us the changes that require these funding increases?

ANSWER: The VHSIC program has been expanded in areas which will help ensure the availability of VHSIC chips and promote rapid, widespread system applications. These areas are technology insertion, yield enhancement, and system design tools. Technology insertion funds will be used to start early designs and feasibility studies to ensure that system applications are ready to proceed as soon as chips are delivered. Yield enhancement activities are essential to improve the yields (fraction of total chips which turn out good) in the pilot production lines. Experience gained in VHSIC thus far shows that a major effort is needed to develop a comprehensive computer-aided design capability for effective design of systems with chips of VHSIC complexity. These system design tools will be the key to making VHSIC usable by the defense community as a whole.

ADDITIONAL FUNDING FOR VHSIC

QUESTION: How much additional funding has been added to the FY 1984 program for the technology insertion effort?

ANSWER: A total of $21.8 million dollars was added in FY 1984 for VHSIC technology insertion efforts.

CANDIDATE SYSTEMS

QUESTION: What are some of the candidate systems for the technology insertion effort?

ANSWER: Some of the Air Force systems being considered for accelerated VHSIC technology insertion include the ALQ-131 electronic warfare pod; the launch and leave guided bomb; a common signal processor; and the MIL-STD 1750A embedded computer.

AF EFFORTS TO MAKE VHSIC LESS VULNERABLE

QUESTION: What is the Air Force doing to make VHSIC less vulnerable to the effects of electromagnetic pulse and radiation?

ANSWER: Vulnerability of a system to damage by electromagnetic pulse is determined primarily by system design, the packaging and shielding approach used for the boxes and modules comprising the system, and finally by the input protection circuits on the chips themselves. In most cases, VHSIC will use the same type of input protection circuits used by conventional well designed integrated circuits. Studies are being conducted by the VHSIC Phase I contractors and various DOD laboratories to determine if anything additional can be added to the VHSIC circuits to address this problem. In addition, electromagnetic pulse protection will be required for the VHSIC Phase II submicron technology development.

The Air Force has recognized for some time the need for greater radiation tolerance requirements on VHSIC chips. To address this problem for all service applications, the Defense Nuclear Agency has funded six additional contracts with the six VHSIC Phase I contractors to insure radiation hardness requirements are achieved in the VHSIC chips for applications such as strategic space systems.

IMPACT OF VHSIC PROGRAM

QUESTION: What would be the impact of the VHSIC program if Congress stretched out this effort an additional year or two?

ANSWER: The VHSIC program is on a very tight time schedule to meet technology insertion windows for a number of major system programs. Major delays in the program will result in missing these opportunities for technology insertion and the loss of major cost savings and performance improvements which would accrue through application of VHSIC technology.

TEST ON F-110

QUESTION: The FY 1984 funding request for the alternative fighter engine program will complete the full scale engineering development effort for the F110 engine. What kinds of tests will be conducted on the F110 to support official qualification of this engine in 1984?

ANSWER: The testing in FY 1984 includes sea level testing at the contractor's facility, as well as altitude testing at Arnold Engineering Development Center. A 4000 tactical cycle Accelerated Mission Test (AMT) will be completed. Flight tests in an F-16 are also programmed.

FY 1984 BUDGET REQUEST HIGHER THAN PROJECTION

QUESTION: Why is the FY 1984 budget request for this line so much higher, nearly $50 million, than the projection made for it last year?

ANSWER: When the Alternate Fighter Engine program was submitted last year, the details of the effort required for integration of both the improved F100 and the F110 into the F-15 and F-16 aircraft were not identified. These integration funds were included in the FY 1984 request and are reflected in the increase you mentioned.

RELEASE OF ADDITIONAL MONEY

QUESTION: Has the Air Force obligated and released the additional $30 million the Appropriations Conference provided last year to increase the thrust of the F100 engine? If not, why not?

ANSWER: Of the total $38.3 million appropriated last year by the Congress, $10.3 million has been released to the Air Force by OSD. As of 31 March 1983, approximately $4.1 million has been committed.

OUT YEAR PLAN

QUESTION: Does the Air Force have an outyear plan to develop a higher thrust of the F100?

ANSWER: Beyond the limited demonstration of a higher thrust F100 in the Engine Model Derivative Program which completes in FY 1985, the Air Force has no plans for a full scale development program which would require between $200-$300 million.

AF FIGHTER ENGINE PROCUREMENT PLAN

QUESTION: Please provide to the Subcommittee an outline of the Air Force fighter engine procurement plan through the 1990s. This should include the number of new engines going into the F-15 and F-16 and also the number of engines that will have to be procured for the new advanced tactical fighter.

ANSWER: Based on the President's Budget fighter procurement quantities, the USAF expects to procure approximately 500 engines per year for F-15 and F-16 installation and spares. We would expect this procurement level to remain relatively constant into the early 1990s when the next generation of fighter aircraft should begin to come into the inventory. Consistent with these planned acquisition quantities, the current engine competition is presently based on 2529 engines in the 1985-90 timeframe. Acquisition quantities beyond the early 1990s are less predictable, since advanced tactical fighter (ATF) planning is not sufficiently mature to accurately predict engine requirements.

ATF

QUESTION: The advanced tactical fighter program was started to develop technologies and concepts and refine the characteristics of a tactical fighter for the 1990's. Do we have any better idea of what ATF will look like?

ANSWER: The Advanced Tactical Fighter Technologies program received FY 83 funding to begin the development of technologies

and concepts for a 1990's fighter aircraft. Most of the major US aircraft corporations have one or more preliminary ATF design concepts, but it is too early in the development process to specify what the ATF will look like.

Several competitive contracts will be awarded by July for engine and airframe concept design studies. In mid-to-late FY 84, the Air Force plans to complete analysis and evaluation of the proposed aircraft concepts and then select two to three designs for more detailed analysis and validation. Two competing engine designs will be funded up to the full scale development decision when one airframe and engine design will be selected for the ATF.

COMPLETE ENGINE DESIGN

QUESTION: Most of the funding request for ATF is for the joint fighter engine project. Will the FY 1984 funding request complete engine design?

ANSWER: The Advanced Tactical Fighter Technologies FY 1984 funding request will complete most of the conceptual engine design. Total engine design must be based on an iterative process involving design, fabrication, and test of component and core hardware. That process will take three to four years.

The detailed, but still preliminary, competitive engine designs will be defined by mid FY 85 to support full engine fabrication and test demonstration of each engine's performance and durability characteristics. Competitive engine demonstration will provide data for the planned full scale development decision when one airframe and engine design will be selected for the ATF.

DEMONSTRATION/VALIDATION PHASE

QUESTION: When does the demonstration and validation phase of the engine program begin?

ANSWER: Initial demonstration of engine components will begin in mid-FY 84. Engine design will continue in an iterative process involving design, fabrication, and test of engine component and core hardware over a three to four year period.

IMPACT OF BUDGET REDUCTION

QUESTION: What would be the impact of a budget reduction for the engine design work this year?

ANSWER: Any reduction in the funding request for the Joint Fighter Engine development project will delay completion of the engine conceptual design, start of engine component and core testing, and transition to full scale development in time to support the Advanced Tactical Fighter. Reductions would impact the overall schedule of the Advanced Tactical Fighter or increase development risk due to reduced testing if schedule is maintained.

AIR FRAME DESIGN

QUESTION: Just how far ahead of the air frame design is the engine design effort?

ANSWER: Initial conceptual designs for both the engine and air frame are being iterated in a parallel effort. Preliminary engine characteristics must be examined in close coordination with the

airframe requirements and concepts so that the designs are complementary.

For example, the aircraft's general range, speed and maneuver requirements will determine the appropriate engine thrust class, core size and bypass ratio. If those characteristics can be determined fairly accurately and early in the development process, then the engine design and demonstrator hardware will require much less change during full scale development integration.

While the schedules for engine and airframe concepts are proceeding closely together, the share of program funding heavily favors engine development over the next few years. This management approach is necessary since the competitive engine demonstration effort involves hardware fabrication and test long before the airframe designs transition from analytic validation to full scale development hardware.

FIRM AIR FRAME CHARACTERISTICS

QUESTION: At what point must we develop firm air frame characteristics so that we can proceed with a common full scale development effort?

ANSWER: Advanced Tactical Fighter airframe characteristics must be well defined and analytically validated for two to three competitive designs by late FY 87 to support the planned full scale development decision and selection of one airframe/engine design.

Preliminary definition of approximately seven competitive concepts will be available by late FY 84 to allow the selection of two to three design concepts for more detailed analysis over a three year period prior to the full scale development decision.

NEED FOR BOTH

QUESTION: The Air Force is requesting $66.6 million for HH-60D development. At the same time, you also want $14.4 million for the Air Force portion of the joint services rotary wing development program. Why do you need both?

ANSWER: While both the HH-60D and Air Force version of the JVX fulfill requirements in the combat rescue/special operations mission areas, the programs differ significantly in timing and in scope.

The HH-60D is needed now to modernize the combat helicopter fleet, to increase force size to an acceptable level and to develop the capability for low level precision navigation at night and in adverse weather conditions - a key to survival in today's threat environment.

The HH-60D will replace all combat rescue helicopters and light and medium lift special operations helicopters beginning in 1987.

The JVX is needed primarily to bridge the gap in speed, range and payload capacity between special operations helicopters and MC-130 aircraft for the long range missions. The JVX does not come into the inventory until the mid-to-late 1990s. The JVX will replace special operations HH-53s and augment special operations HH-60D and MC-130 aircraft.

In concert with the HH-60D, the JVX would also yield a significant increase in combat rescue capability by providing a vehicle

with substantially increased range and speed. These characteristics extend our area of operations enabling us to attempt to rescue a higher percentage of downed airmen and considerably enhance the survivability of our rescue forces.

CURRENT INVENTORY

QUESTION: What is the current inventory of helicopters for the HH-60D mission?

ANSWER: The HH-60D is being procured to support combat rescue and special operations. The current combat rescue force inventory of 99 helicopters includes eight UH-60A, 13 HH-53, 50 HH-3, and 28 UH-1N. The current special operations inventory of 17 helicopters includes eight HH-53H and 9 UH-1N.

URGENT AF REQUIREMENT

QUESTION: What is the more urgent Air Force requirement -- the HH-60D or JVX? Explain.

ANSWER: While the Air Force is firmly committed to both programs to satisfy the full range of combat rescue/special operations vertical lift requirements, the need for the HH-60D is more urgent.

The current combat helicopter force is aging, inadequate in size and systems capabilities and becoming increasingly difficult to operate and maintain. Only 9 HH-53H helicopters have the capability for low altitude precision navigation at night and in adverse weather conditions. This fleet must be modernized now if we are to have a credible combat rescue/special operations capability.

COMPARATIVE IOCs

QUESTION: What are the comparative IOCs of the HH-60D and the Air Force version of the JVX?

ANSWER: The HH-60D IOC will be in 1987 with deliveries completed in 1993. The Air Force version of the JVX does not come on line until 1993, when the Air Force will pick up six aircraft for Special Operations Forces, and the first full IOC for the AF occurs in 1995 with deliveries continuing to the year 2000. These estimates assume that the JVX development remains on schedule for the next twelve (12) years.

QUESTION: Would it be possible for the Air Force to procure additional HH-60D aircraft rather than go forward with the current JVX program.

ANSWER: While the purchase of additional HH-60D aircraft would certainly be possible, it would not satisfy the requirement for increased range, speed and payload for which the JVX is needed.

NEED TO PURSUE HH-60D

QUESTION: Conversely, in view of the JVX potential, why does the Air Force need to pursue the HH-60D?

ANSWER: The projected availability of the two aircraft differ substantially. The HH-60D will be available in 1987 to meet identified shortfalls in the number of aircraft and operational capabilities of the existing rescue and special operations forces (SOF) fleet.

To meet existing operational requirements, rescue/SOF helicopters must be able to operate at night and in the weather if they are to have a reasonable chance of surviving when operating within the known threat environment. Even with night/all-weather capability there will still be some rescue and many special operations missions that in order to be successful will require longer range, high speed tactics.

The JVX capabilities, as we project them now, will satisfy these long-range , high speed vertical lift mission needs. The JVX, however, will not enter the Air Force inventory until the mid-to-late 1990's. The HH-60D is needed now to modernize the Air Force combat helicopter fleet, to expand the force structure, and to develop the capability for low level navigation at night and in adverse weather to cope with today's threat environment.

DIFFERENCE BETWEEN SEEK TALK AND HAVE CLEAR

QUESTION: Last year the Armed Services Committees terminated the SEEK TALK program which would have provided Air Force tactical fighters with a jam resistant system for all UHF voice communications. Now the Air Force has restructured the program and redesignated it HAVE CLEAR. What is the difference?

ANSWER: There are several ways in which HAVE CLEAR is different from the SEEK TALK program.

First, HAVE CLEAR will employ a stronger radio-frequency (RF) signal and a hybrid pseudonoise/fast-frequency-hopping/burst-transmission waveform [deleted] thus accommodating a larger number of nets, including cosite operations.

Second, operation will be in an alternate frequency band [deleted.]

Third, HAVE CLEAR's basic AJ protection is achieved through the use of waveform design and radio-frequency power. Null steering antennas will be retained as a growth item only, for use in suitable applications, in recognition of their high cost, difficult installation and special vulnerability to spatially distributed jammers.

Fourth, to address concerns for interoperability and proliferation, several system parameters -- pulse rates, pulse width, etc., -- have been chosen to have factors in common with JTIDS. This opens the possibility of future co-production of special circuits and of eventual integration of the systems.

HAVE CLEAR

QUESTION: Can you assure the Subcommittee that HAVE CLEAR will permit Air Force fighter pilots to maintain voice contact, and is secure against the Soviet jamming threat?

ANSWER: We are convinced that of all the alternatives available, HAVE CLEAR will provide the best jam-resistant secure voice capability against the Soviet jamming threat. However, it can only provide such jam resistant secure voice communications for most scenarios. There will always be specific mission scenarios which would require higher jam-resistance than we are able technically and economically to build into HAVE CLEAR or any other anti-jam communication system.

LESS EXPENSIVE

QUESTION: Will HAVE CLEAR be less expensive than SEEK TALK? Explain.

ANSWER: While definitive costs will not be available until after critical design review in the spring of 1984, the Air Force is confident that the HAVE CLEAR approach will be less costly. Several factors lead to this confidence.

First, HAVE CLEAR derives its basic anti-jam (AJ) protection through waveform design and RF power. As a result, the null steering antennas, which were planned for SEEK TALK are not needed. The development, acquisition and installation of these antennas was a significant element in the cost of SEEK TALK, which HAVE CLEAR will not bear.

Second, SEEK TALK had serious problems [deleted] [deleted.] These problems made the cost of installing SEEK TALK on cosite platforms, such as the E-3A extremely costly. Significant efforts have been devoted during the past year in designing HAVE CLEAR to reduce cosite problems and their associated costs on platforms such as the E-3A. The waveform chosen for HAVE CLEAR will, in fact, [deleted] [deleted] thus aiding in the resolution of cosite problems.

Third, the Master Timing Distribution System (MTDS) for SEEK TALK was estimated to account for about ten percent of the total life cycle cost of the system. Efforts during the past year have resulted in driving that cost down to about four percent for the HAVE CLEAR system.

Finally, and most importantly, the SEEK TALK program costs were based on installing the system into some 32 different mission design platforms requiring over 8,000 terminals including spares. Recent analysis by Tactical Air Command indicates that the number of mission designs requiring a high AJ system could be reduced to 20, thereby reducing total terminal requirements to less than 6,000 for the Tactical Air Forces. In addition to reducing total procurement and installation costs, this approach, which is now in review at HQ USAF, should significantly reduce the development costs associated with integrating the system into individual mission designs.

All of these factors clearly indicate that the HAVE CLEAR program should be less costly than SEEK TALK.

IMPACT OF FUNDING LEVELS

QUESTION: Some $61.5 million is budgeted for HAVE CLEAR. What would be the impact of proceeding with the following funding levels for HAVE CLEAR? $20 million, $40 million, $50 million?

ANSWER: The FY 84 President's Budget includes $65.2 million for development of Advanced Communication Systems. Only $57.9 million is budgeted for HAVE CLEAR development. Remaining funds are for HAVE QUICK II and SINCGARS-V.

Reductions in FY 84 funding for HAVE CLEAR would cause slips to key program milestones and/or an overall stretchout of the program, inevitably resulting in increased total program costs. More importantly, such slips would delay the availability of a much needed high anti-jam voice system for our Tactical Air Forces.

Specific schedule impacts of reducing HAVE CLEAR funding in FY 84, assuming no other funding cuts, are as follows:

a. To reduce funding to $20 million would slip the overall program at least one full year. Only minimum sustaining efforts would be possible.

b. A reduction to $40 million would slip the critical design review (CDR) from March 1984 to late summer 1984 and slip the Initial Operational Capability (IOC) by at least six (6) months. In addition, resulting funding reductions to system engineering support and technology insertion efforts would increase overall program risk.

c. A reduction to $50 million would cause a stretchout in design, fabrication and test of full scale development hardware resulting in an IOC slip of about three months to third quarter FY 88.

AMRAAM

QUESTION: The Air Force is requesting $62.3 million in long lead procurement for AMRAAM. What percentage of AMRAAM development testing will be completed at the time of the AFSARC production release decision?

ANSWER: The Air Force is requesting $62.6 million in FY 1984 for materials, special tooling, and special test equipment in support of the FY 1985 procurement.

At the time of the planned AFSARC Lot I production release decision (Oct 1984), we will be 34 months into a 50 month full scale development (FSD) program with various aspects of FSD at different stages of completion. There is not an overall percentage of completion that would be meaningful since the program was phased to provide the essential information necessary to make the production decisions.

The status (as of the planned Oct 1984 AFSARC), of some key items that will provide valuable information for the production decision follow:

Category	Specific Type Testing	Goals
Captive Tests	Environmental Testing	F-15/F-16 complete
	Guidance Unit	150 sorties complete
		900 data passes complete
Reliability Tests	Captive Carry Reliability Program	50 hours accumulated
	Test, Analyze, and Fix Program	4000 hours accumulated
Firing Tests	Control Test Vehicle	2 firings scheduled
	Guided Test Vehicle	6-11 firings scheduled
Other Tests	Hardware-in-the-Loop Simulation	12 months complete
	Wind Tunnel Tests	600 hours complete
	Warhead Arena Tests	37 firings complete
	Rocket Motor Preliminary Flight Readiness Test	complete
	Subsystem Performance Verification Test	complete
	Missile Performance Verification Test	underway

It is important to note that test firings alone do not provide a fair yardstick for the quantity of work accomplished. Particularly, the preparation for firings and basic engineering development flight test of the missile seeker are objectives that will be

well tested prior to the decision point. Finally, test phasing has been planned to optimize the missile development test and evaluation (DT&E) early in the FSD flight test with aircraft compatibility/integration objectives being emphasized later in FSD.

This methodology places a heavy emphasis on the use of captive (nonexpendable) assets with a corresponding low rate approach to firing/expending of expensive test assets. We are confident that this test program will provide us with sufficient information to support the Lot I production decision with an acceptable degree of risk. This plan was accepted and approved by the Defense Acquisition Review Council (DSARC) in Sep 1982.

PRODUCTION SCHEDULE OF AMRAAM

QUESTION: Isn't this a highly concurrent developmental production schedule?

ANSWER: While the AMRAAM production schedule does overlap the full scale development schedule, these schedules were deliberately structured with manageable concurrency to satisfy the urgent need for AMRAAM (based on the validated threat), especially in the European theater and for use on the F-16. However, we believe that the schedule risk is acceptable and manageable. We have incorporated schedule and quantity flexibility in the production contract, as well as long lead liability limitations to allow us to adjust for problems if any should arise.

MAJOR TECHNICAL SYSTEMS OBJECTIVES

QUESTION: Are you confident that AMRAAM will have demonstrated its major technical systems objectives with only that percentage of testing having been completed?

ANSWER: We are confident that the AMRAAM will have demonstrated sufficient technical objectives by the Lot I advance buy decision. The AF intends to ensure that the contractor has made such progress in the missile subsystem development that the probability of significant change is low. All preliminary design reviews and long lead critical design reviews will have been completed. A comprehensive production readiness review of Hughes and all major vendors will also have been completed.

The principal manufacturing operations will have been transitioned from Canoga Park to Tucson. Level 2 drawings and Part II fabrication specifications will be completed. Demonstrated development program and qualification testing (on subsystems such as the rocket motor, warhead, seeker, launchers, and control section) will be assessed. Software integration progress with total system hardware, including aircraft integration, will be reviewed. All scheduled wind tunnel testing will be completed.

Extensive hardware-in-the-loop simulation data will be available to verify thresholds, specification compliance, and Electronic Counter Countermeasurs (ECCM) performance. AMRAAM Captive Equipment (ACE) will have been delivered and will be in flight test against real targets.

F-16 Class II modifications will be completed. Special test vehicles, such as the inertial measurement vehicles, captive loads vehicles, separation/control test vehicles, and others will be delivered and in test. The schedule of guided test vehicle fabrication will be reviewed in detail to assess the status of manufacturing efforts.

Given the low risk of the items to be procured on the advance buy contract and the well thought out sequence of events described above, we believe that we will have a good basis for the Air Force Systems Acquisition Review Council (AFSARC) decision to review the program and decide on the release of the Lot I advance buy funding.

CONCLUSION OF TESTING FOR AMRAAM

QUESTION: When does development testing conclude?

ANSWER: The entire full scale development (FSD) program for AMRAAM is scheduled to be completed in FY 1986. However, development/initial operational test and evaluation (D/IOT&E) will be completed for the F-16 by Sep 1984 (prior to production release for Lot I) and for the F-15 by Sep 1985. DT&E will be completed for the F/A-18 by Jul 1985 and for the F-14 by Dec 1985.

MANAGEMENT CONTINGENCIES FOR AMRAAM

QUESTION: What management contingencies have you taken to insure that you can meet developmental problems? Do you have the flexibility to slip the schedule? Just what provisions have been made for the concurrency in the program?

ANSWER: The Air Force has structured prepriced production options on the full scale development (FSD) contract to provide flexibility to meet any significant problems that might arise during FSD. Schedule flexibility is included for both Lots I and II. We can delay the initial production decision for up to six months without losing the prepriced options. This same provision is available for the exercise of the Lot II production option.

We also have flexibility in the quantities we procure in Lots I and II. We can increase or decrease the Lot I production quantities from the planned 224 missiles. If necessary, for Lot II production (currently planned for 1042 missiles) we could hold quantities down to essentially the Lot I level. These quantity/schedule provisions may be used separately or together depending on the situation.

The final management item built into the contract options to protect the Air Force in regard to contingencies is the definition of maximum liabilities for Lots I and II advance buy production options. There is a schedule of prenegotiated limits that cover the period from award of the advance buy contract to the full lot production award. It is important to note that these sums (limits) represent commitment of resources to procure only low risk materials that could be used in any subsequent production.

The Air Force believes that these provisions adequately provide the management tools necessary to deal with the schedule concurrency and the associated risk.

TOTAL PROGRAM ACQUISITION COSTS ESTIMATE FOR AMRAAM

QUESTION: Please provide the Subcommittee with the total program acquisition costs estimate for the program. Has OSD raised the AMRAAM cost estimate? How does the Air Force intend to use additional management reserve funds programmed for by OSD? Is the Air Force convinced that it can come in at the price quoted for the program last year, $6.1 billion?

ANSWER: The total program acquisition cost estimate (3600 and

3020 funds) for the AMRAAM program as reflected in the 31 Dec 82 Selected Acquisition Report (SAR) follow:

	Dollars in Millions	
	BASE YEAR 78 $	THEN YEAR $
Development (3600)	597.1	951.0
Production (3020)	2888.5	6960.8
TOTAL	3485.6	7911.8

As a result of the Defense Systems Aquisition Review Council review of the AMRAAM program, OSD directed the Air Force to budget in accordance with a higher out year cost estimate than the Air Force program office estimate. The estimates are different from FY 1987 through the outyears in the 3020 budget only.

The Air Force does not intend to use the difference between the program office and OSD cost estimates unless significant unforeseen problems arise. The Air Force is committed to manage to the lower estimate. We will make every possible effort to bring the program in at the program office estimate ($6640 million in then year dollars - including initial spares).

TOTAL FORCE MIX

QUESTION: According to this year's Air Force program descriptive summary for the C-17 the total procurement buy has not yet been determined. Last year you projected 64 C-17's and 50 C-5B's to meet our outsized airlift requirements as specified in the Congressionally mandated mobility study. What total force mix did you envision?

ANSWER: The statement "64 C-17's and 50 C-5B's to meet our outsized airlift requirements as specified in the congressionally mandated mobility study" is a comparison of aircraft equivalency and not an indication of force mix. Either sixty-four C-17s or 50 C-5Bs would provide about 7.5 million ton miles per day of intertheater airlift capability. A determination of our future airlift force mix is under consideration, but a final decision has not been made at this time.

COST EFFECTIVENESS

QUESTION: Couldn't we use the C-17 to replace C-130As and air drop capable C-141s? Wouldn't it be more cost effective?

ANSWER: The C-17 is our primary candidate to replace the lost capability from retiring C-130As and C-141s in the mid-1990s. It is the only aircraft that will reasonably be able to perform both the inter and intratheater airlift missions.

ACCELERATE C-17 PROGRAM

QUESTION: From a technical perspective, isn't it possible to accelerate the C-17 program and put it into engineering development before fiscal year 1985, your current milestone?

ANSWER: Yes, from a technical perspective the C-17 program is structured as a very low risk development and production program. Full scale engineering development could be initiated immediately with sufficient funds.

However, the alternative we have chosen is to continue the program at a low level for now and begin a ramp up in R&D activity in the near future. Because of budget constraints, any acceleration

in the C-17 profile would require a dollar offset from other high priority Air Force programs. We have carefully phased our airlift programs to meet fiscal guidance and efficiently reduce the airlift shortfall. Our current estimate for increased R&D activity is FY 85, leading to an FY 92 IOC.

CURRENT C-5B and C-17 PROCUREMENT SCHEDULES

QUESTION: Please outline current C-5B and C-17 procurement schedules and how the IOCs of each relate to one another?

ANSWER: Based on a full scale engineering decision to go ahead with the C-17 program, it is estimated that the first aircraft will be procured with FY 88 funds. A comparison of the FY 84 President's Budget procurement schedule for the C-5B and our C-17 estimate follows:

	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88
C-5B	1	4	10	16	19	0
C-17	0	0	0	0	0	2

Because there is not an IOC associated with the C-5B program, a relationship to a C-17 IOC is not possible. The IOC for the C-17 however, is defined as delivery of the 12th aircraft.

PRACTICAL TO ACCELERATE

QUESTION: Would it be practical to accelerate the C-17 program, cap C-5B procurement below 50 and increase C-17 acquisition if that is deemed necessary?

ANSWER: It is possible to cap the C-5B production below 50 and to accelerate C-17 development and production. It is our opinion however, that because of the technical and financial risk to the government, it would not be practical to do so.

The C-5B is being procured under a firm fixed price contract with options at the end of FY 83, 84, 85, and 86 for the next years procurement buy. Non-recurring costs are spread over the first three years (FY 83 - 85) and would have to be paid if the contract were terminated before the end of FY 85. Work on the project is proceeding on schedule and government cost estimates show the price of the program is in line with Lockheed's offer.

The C-5B will also provide a needed increase in outsized airlift capability at the earliest possible time at very low technical and financial risk to the government. It is because of these reasons that a cap below 50 C-5Bs is not practical.

Any acceleration of the C-17 program would require a financial offset from other high priority Air Force programs due to budget constraints. We have carefully considered all these aspects in structuring the acquisition of C-5Bs and C-17s. The phasing of both programs reduces our airlift shortfall in the near term and provides for long term flexibility in meeting our requirements in the future.

LANTIRN

QUESTION: Please detail for the Committee what the LANTIRN R&D request of $89.9 million will be for, particularly the following: (1) navigation and targeting pod, (2) fabrication and reliability tests, (3) support equipment development, (4) flight tests, and (5) aircraft integration with the A-10.

ANSWER: The detailed categories of the R&D request for LANTIRN are as follows:

(1) Navigation and targeting pod fabrication and prime contractor test support -- $18.9 million
(2) Reliability testing is included in the above costs but is not broken out separately in the prime contractor fixed price contract
(3) Support equipment development and fabrication -- $36.3 million
(4) Flight test costs -- $8.7 million
(5) Aircraft integration with the A-10 -- $3.3 million
(6) Aircraft integration/instrumentation for F-16 -- $4.5 million
(7) Maverick assets for flight test and associated integration tasks -- $3.5 million
(8) Other integration tasks -- $1.5 million
(9) Software independent validation/verification -- $1.0 million
(10) Head-Up Display contractor flight test support -- $1.7 million
(11) Automatic terrain avoidance -- $3.5 million
(12) Mission support and engineering changes -- $7.0 million

QUESTION: The LANTIRN program has been changed to put it not only on a total of 300 A-10 and F-16 aircraft but also the dual role fighter, the so-called E-model derivative fighter aircraft. What will that do to bring down LANTIRN unit costs?

ANSWER: The latest program office estimate indicates that an increase from 300 podsets to 710 podsets reduces Base Year 1980 unit flyaway costs from $1.9 million (category IV estimate) to $1.7 million (category II estimate). With regard to total program unit costs in Then Year dollars, the contribution of RDT&E and non-recurring costs are decreased by over half with the additional podset buy, while the escalation from base year 1980 to Then Year dollars partially offsets the decrease because the additional podsets are produced in later years with increased escalation.

STATUS OF TECHNOLOGY

QUESTION: What is the status of the technology development for the automatic target recognizer?

ANSWER: The automatic target recognizer technology is being continued in advanced development by two competing contractors, Martin Marietta and Hughes Aircraft Corporation. Each contractor has a laboratory breadboard processor which has demonstrated real-time image digitization and target recognition using FLIR data tapes as an input.

Results from these breadboard processors have been encouraging to date. Each contractor will continue to refine software algorithms in preparation for an in-depth evaluation by June 1984 when high quality digital recorded FLIR data will be available. An assessment will be made at that time of the maturity of the technology and the merits of proceeding into full scale development.

COMPETITION BETWEEN LANTIRN AND F-18 FLIR

QUESTION: Last year there was a congressional effort to require a competition between LANTIRN and the F-18 FLIR. The Appropriations Committees refused to fund that competition. What would be the impact on the Air Force night attack program of proceeding with such a competition this year, in terms of total cost growth and schedule slippage?

ANSWER: Proceeding with an F-18 FLIR competition would impact program schedule to the extent that the LANTIRN targeting pod production efforts are delayed while waiting for a sufficiently mature modified F-18 FLIR. If no production funding of the targeting pod is allowed until a fully competitive flyoff is conducted, then targeting pod deliveries would be delayed at least 12 months. The projected cost impact of this approach would be a net increase of approximately $160 million in RDT&E and of $60 million in procurement.

If the targeting pod production schedule were preserved while proceeding with the F-18 FLIR competition, the RDT&E estimated cost increase would be approximately $160 million. The procurement cost increase under this condition could be as high as $245 million if the modified F-18 FLIR pod were selected as winner after flyoff. All the preceding estimates are based on confidence level IV planning data, which is defined as an analysis of selected key cost elements (preliminary estimates).

MRASM PRIORITY

QUESTION: For a number of years there have been attempts by the Navy to pull out of the joint Air Force/Navy MRASM program. The Air Force version of MRASM is scheduled to fly in FY 1984. Just what priority does MRASM have with the Air Force?

ANSWER: The need for MRASM has strong support within the Air Force, especially within SAC. Employed on B-52Gs to attack airfields, it will give SAC its first true long range standoff conventional weapon capability.

SLIPPAGE OF PRODUCTION APPROVAL FOR MRASM

QUESTION: Your FY 1984 descriptive summary indicates that production approval for MRASM slipped because of program delays caused by inadequate Navy funding. If the Navy continues to underfund the program, wouldn't it be wiser to turn this program over to the Air Force in its entirety?

ANSWER: The requirement for additional funding required to offset the current USN funding would have to be evaluated in light of other Air Force programs.

BUDGET AUTHORIZATION FOR MRASM

QUESTION: Would the Air Force be willing to provide the necessary budget authority to keep this program on schedule should the Navy be removed from the program?

ANSWER: The Air Force has always supported MRASM at the raquired funding level. The question of adding additional funding in FY 84 and FY 85 to cover the USN commitments would have to be evaluated in light of other USAF programs.

ALTERNATIVE TO MRASM

QUESTION: Do you have an alternative to MRASM?

ANSWER: The only long range standoff alternative to MRASM is the Joint Tactical Missile (JTACM). JTACM has less range than MRASM and may have a smaller payload.

PROOF OF CONCEPT PRINCIPALS

QUESTION: When do you plan to provide proof of concept principals for an airfield attack submunition for MRASM? What initiatives has the Air Force started in 1984 in the way of developing a cratering runway submunition?

ANSWER: An effective runway cratering submunition, Boosted Kinetic Energy Penetrator (BKEP), has been successfully demonstrated against a Warsaw Pact-type target at Eglin. We have awarded a Full Scale Development contract to AVCO to complete its development.

ALCM/B-1

QUESTION: Please discuss how the ALCM and B-1 weapons systems integration programs will change due to the decision to cancel the ALCM-B program.

ANSWER: The Air Force does not anticipate any changes to the B-1B baseline program. The B-1B program expects to integrate an internal/external Air Launched Cruise Missile (ALCM) carriage capability effective with B-1B number 9. The B-1B flight testing for this capability is planned to be accomplished on B-1A number 2 and B-1B number 9. The B-1B certification of internal/external ALCM carriage/launch is currently planned for early 1988.

B-52 SUBSYSTEMS

QUESTION: You are requesting $86.9 million in R&D for B-52 subsystems -- a new auto pilot, EMP hardening, a new strategic radar, and an offensive avionics system. Why should we continue to put up this kind of R&D money into an aircraft we intend to retire?

ANSWER: The purpose of the B-52 RDT&E is to maintain the operational effectiveness of the B-52 force throughout its projected life. Aircraft subsystems are becoming increasingly difficult to support and require reliability/maintainability updates to achieve the required probability of mission completion. The planned modifications are upgrades to existing systems, not new systems.

The radar, in its present state, is the greatest contributor to an unsatisfactory daily B-52 in-commission rate. Procurement of spare parts is becoming more difficult since the parts are obsolete and no longer in production. The programmed update, which completes development in fiscal 1984, provides a reliable, accurate radar essential for the inertial navigation system and cruise missile alignment.

The offensive avionics system, which completes procurement in FY 1984, provides improved reliability, maintainability,

and supportability for the 1950's technology B-52G/H bombing and navigation system. Additionally, it is required to integrate the systems necessary for the B-52 to carry, align, target, and launch the Air Launched Cruise Missile and Short Range Attack Missile.

The autopilot has become difficult and costly to maintain. The system has experienced unscheduled pitch up/down on low level and aerial refueling modes as well as roll wallow and yaw oscillations. Of particular concern are the narrow performance margins in the low level and aerial refueling modes.

Based on the results of extensive testing and analysis of the B-52, we are progressing on an electromagnetic pulse (EMP) hardening program to increase the resistance of the B-52 cruise missile carriers to nuclear effects. We believe that this hardening program provides increased confidence in the EMP hardness of our cruise missile carriers.

DELETE SUBSYSTEM UPGRADE

QUESTION: Can we get by without one or two of these subsystems upgrades, particularly the autopilot?

ANSWER: The reliability/maintainability upgrades are programmed only for those subsystems essential to maintain the B-52's operational effectiveness.

The B-52 autopilot, which dates back to 1940's technology, has become difficult and costly to maintain. Of particular concern are the narrow performance margins in the low level/ aerial refueling modes. A safe, reliable system is required.

INVENTORY OF PARTS AND SUBSYSTEMS

QUESTION: Is the Military Aircraft Storage and Disposal Center (MASDC) at Davis Monthan Air Force Base in Tuscon, Arizona taking a complete inventory of all parts and subsystems as they come off the B-52Ds to determine whether they could be retrofitted into active B-52s?

ANSWER: As B-52Ds are placed into storage at MASDC, usable parts and subsystems are removed and inventorially controlled by a save list. This save list is developed by the Air Force Logistics Command Item Managers and System Managers and includes parts usable on other B-52's and common items which can be used on other aircraft. The Air Force goal is to make maximum use of parts from the retired B-52D assets.

MAJOR R&D EMPHASIS

QUESTION: What major B-1B R&D activities are budgeted for FY 1984? Does the major R&D emphasis shift to flight testing?

ANSWER: The major activities planned for the B-1B RDT&E program in FY 1984 include the following:

Systems Engineering/Program Management
System Test and Evaluation
Air Vehicle Development
System Hardware/Software Development
Engine Development
Support Equipment/Technical Data Development

The major emphasis in the FY 1984 RDT&E budget are the system engineering tasks and integration of the development efforts of the four associate contractors. These tasks are in direct support of the rollout of the first production B-1B in the first quarter of FY 1985.

It should be noted, however, that a larger emphasis will be placed on the B-1B flight test program than in any previous year. Two B-1A prototype aircraft will be flying in FY 1984. B-1A number 2 is currently flying and will continue to demonstrate throughout FY 1984 the flying qualities and weapons carriage/separation capabilities expected of the B-1B. B-1A number 4 will thoroughly evaluate the offensive and defensive avionics characteristics of the B-1B. This well-structured, aggressive test program will result in an operationally ready B-1B weapon system at the Initial Operational Capability date in September 1986.

BREAKOUT OF B-1B R&D FUNDING

QUESTION: Please provide a breakout of B-1B R&D funding and specify how much of the R&D money is going to be going to flight testing. When does flight testing of the B-1A No. 2 aircraft resume? The B-1A No 4? What are your flight test objectives?

ANSWER: The FY 1984 funding request for B-1B RDT&E is planned to be apportioned to the following tasks:

Major Tasks	Planned Funding (TY $ in Millions)
Air Vehicle Development	$103.0
System Hardware/Software Development	86.2
Prime Mission Equipment	7.9
Engines	15.3
Training/Peculiar Support Equipment	18.2
Systems Test and Evaluation	177.2
Systems Engineering/Program Management	223.8
Technical Data	6.2
Prototype Modification/Refurbishment	18.4
Other Government Costs	59.7
Engineering Change Orders	34.0
TOTAL	$749.9

Flight testing costs are not individually separated within the major categories enumerated above. Many of the categories contain a level of effort that includes support for the flight test program. The System Test and Evaluation line is almost entirely flight test level of effort as is Prototype Modification and Other Government Costs. The remainder of the major tasks contain minimal flight test level of effort support.

Flight testing on B-1A number 2 resumed on 23 March 1983 with the initial mission of the B-1B flight test program. B-1A number 4 will initiate its portion of the flight test program in July 1984. The major categories of flight test objectives are specified below by test aircraft, including B-1B number 1, which will begin flying in December 1984.

B-1A Number 2 Flight Test Objectives
Weapons carriage/separation characteristics
Aircraft stability and control
Vibration/acoustics examination

Dynamic response substantiation
Aircraft performance
Propulsion

B-1A Number 4 Flight Test Objectives

Production defense system avionics group evaluation
Evaluate production offensive avionics
Integrated offensive/defensive avionics groups performance
Test/evaluate aircraft development
Heavyweight buildup to maximum operating gross weights
Adverse weather testing

B-1B Number 1 Flight Test Objectives

Flight flutter evaluation
Vibration/acoustics verification
Aircraft performance verification
Weapons carriage/separation certification
Propulsion/inlet verification
Avionics integration/systems performance
B-1B aircraft ground handling certification
RCS measurement/verification
Software systems performance evaluation

DATA TRANSFERRABLE

QUESTION: Is much of the data from these B-1A flight tests directly transferrable to the B-1B?

ANSWER: The original B-1A flight test program flew 1895.2 hours of which nearly all the testing and data are applicable to the B-1B program. As a result of the data transferability, the B-1B flight test program will use two B-1A aircraft to evaluate those areas deferred or not completed during the original program and to test minor changes requiring verification testing.

FLIGHT TESTING

QUESTION: THE B-1B flight test program doesn't begin until FY 1985. What systems test will have to be conducted with the B-1B which we could not verify through B-1A flight testing? Are these considered major?

ANSWER: The flight test program using a B-1B aircraft is primarily oriented toward verification of data compiled from the earlier testing of B-1A aircraft. However, there are some important tasks which can only be completed on a fully equipped production aircraft. The Air Force considers these tasks major as they demonstrate and verify important capabilities of the B-1B on a production aircraft.

The tests of these modifications and changes, such as the engine inlet modification, must be completed on the B-1B. Also, the final ground and flight tests to satisfy nuclear certification requirements must be accomplished on a production aircraft.

Avionics flight testing of final production software and its integration into the offensive and defensive avionics systems must be completed on the first B-1B. Finally, radar cross section measurements will be verified on the B-1B.

% OF TOTAL B-1B SYSTEMS TESTING IN B-1A

QUESTION: What percentage of total B-1B systems testing will be conducted with the B-1A? Can you estimate how much money will be saved by using this flight test strategy over a conventional flight test program?

ANSWER: The current B-1B flight test program expects to fly 1000 hours. The B-1A will fly approximately 700 of those hours, completing test items deferred from the original program and evaluating the modified/new equipment for the B-1B program. Further, the Air Force is making maximum use of the 1895.2 hours accumulated during the original B-1A program. The B-1B is approximately 80% common with the B-1A, thus most of the previous flight test data base is translatable to the new aircraft.

The currently planned flight test program was structured by the Air Force to field a fully tested and certified B-1B while complying with the Congressionally directed operational capability date. Cost estimates of alternative flight test programs have not been made. Therefore, an accurate assessment of the exact savings realized through the current B-1B flight test program cannot be made.

It can be noted, however, that using retained aircraft and other assets from the original program does indeed save money for the government. Further, having these test assets available and flying in the near term saves additional government funds by substantially shortening the integration and test efforts.

CONVENTIONAL STRATEGIC STANDOFF CAPABILITY

QUESTION: You are asking this year for $35 million to begin a new program start -- the so called conventional strategic standoff capability. Why is this new start in the FY 1984 budget when it was not projected as necessary last year?

ANSWER: Funding for the Strategic Conventional Standoff Capability (SCSC) was contained in the FY83 Presidents Budget Five Year Defense Plan in Program Element 11113F, B-52 Squadrons, project 2787 Conventional Standoff Capability with funding to begin in FY85. During preparation of the FY84 Budget, $35 million of the FY85 funds were advanced to FY84 for a concept validation effort.

A SCSC would allow strategic aircraft to attack a wide range of targets with conventional munitions while minimizing the aircraft exposure to lethal defenses. The goal of SCSC is to provide strategic aircraft with the autonomous capability to detect, track, identify, engage and destroy mobile, fixed and maritime targets, anywhere in the world.

PROPER EMPHASIS FOR POTENTIAL ADVANTAGES

QUESTION: The FY 1984 Air Force missile procurement account includes long lead time procurement funding for the ASAT program. Critics continue to argue that space-based defense systems are under funded. In view of the potential advantages, are we giving this area proper emphasis?

ANSWER: The US air launched miniature vehicle antisatellite

(ASAT) is not truly a space-based system, but rather a missile launched from an F-15 aircraft.

The funds requested in FY 84 for long lead procurement items are sufficient to begin production as scheduled.

KEEPING ASAT PROGRAM

QUESTION: What would be the impact of keeping the ASAT program in R&D for another year? What would be the penalty in terms of cost growth?

ANSWER: The air launched miniature vehicle antisatellite (ASAT) program has just entered the flight test phase, and funds for research and development will be spent over the next several years.

Production of missiles and support equipment is scheduled to begin [deleted.] If production is delayed it will incur additional cost because subcontractors supplying key elements of the miniature vehicle will not be able to keep intact engineering and management teams between the development and production phases of the program.

A more important "cost" will be the continued imbalance between the US and USSR in space. First, the Soviets enjoy a sanctuary in space -- they have the capability to destroy satellites vital to the US with their operational coorbital ASAT, but we cannot reciprocate in kind.

Second, and more important, the Soviets are operating satellite systems which are capable of providing targeting data on US and allied forces. The US has no way of removing this threat short of an attack on Soviet land or sea based ground stations.

NEGOTIATE LIMITS

QUESTION: Are the Soviets unwilling to negotiate limits on anti-satellite systems?

ANSWER: The Soviets have outwardly expressed a willingness to negotiate limits on anti-satellite (ASAT) weapons both in public statements and support for UN resolutions calling for such negotiations. However, there has been no official/unofficial government-to-government attempt to resume negotiations since the last talks broke-up in 1979 [deleted.]

The Soviets have continued to test their ASAT system while calling for negotiations. Moreover, it is not surprising that they would be in favor of negotiating ASAT limits while maintaining a unilateral advantage over the United States in this area.

NASA/AIR FORCE SHUTTLE PRICING POLICY

QUESTION: Please outline the NASA-Air Force shuttle pricing policy agreement that was reached last year.

ANSWER: After a year-long negotiation and detailed reviews by the leadership of both organizations, the Air Force and NASA signed a new Shuttle pricing agreement on 1 Feb 83. The new agreement, which supersedes the 1977 Memorandum of Agreement (MOA), was renegotiated in recognition of the large cost increases faced by NASA.

We believe the agreement establishes a fair and equitable

pricing arrangement with due consideration to DOD's multi-billion dollar commitment to the Shuttle.

Shuttle cost per flight can be divided into three main areas: hardware (termed Materials and Services), manpower, and optional (extra cost services). These are discussed below:

- DOD will now pay the same costs as civil users for Materials and Services (the hardware expended or requiring refurbishment, such as the external tank and solid rocket boosters). The new agreement increases the DOD cost from the 1977 MOA price of $12.2 million (FY 75 $) per flight for the first six years of operations (actual costs thereafter) to $16.0 million (FY 75 $) for FY 83 and FY 84 and actual costs ($29.8 million (FY 75 $)) thereafter.
- DOD's price per launch is now tied to commercial/civil users and is fixed for the same period as commercial/civil programs.
- The new agreement recognizes DOD's contribution to Shuttle operations. NASA will fund for and operate Kennedy and Johnson Space Centers. DOD will fund for and operate Vandenberg and the Consolidated Space Operations Center and will provide standard range services at both coasts.
- NASA and DOD do not pay for the other's manpower costs for standard services. This "trade" in manpower is the fundamental difference between commercial/civil and DOD launch pricing.
- NASA and DOD have agreed on a definition of "standard" and "optional" services. Optional services will be provided at additive costs to the requestor and will result in additional costs beyond those listed above.

The FY 1983 to FY 1988 budget required to implement the new agreement is approximately $2 billion over the budget associated with the previous (1977) agreement. This budget increase has been funded by the DOD.

DEFENSE PAYLOADS

QUESTION: Is the Department satisfied that all of our defense payloads can be launched with just a four shuttle orbiter fleet?

ANSWER: The Department is satisfied that a four Orbiter fleet can meet all Defense requirements for the near term. That confidence is based upon the Defense priority for Shuttle flights and our ability, if necessary, to require the reallocation of a Shuttle flight from its assigned user. We realize that this is a very disruptive action and would exercise the option only after due consideration of all other options. We do not consider it likely that we will exercise the defense priority option unless a portion of the Shuttle capability is lost for a period of time.

We do not have enough data or experience with the Shuttle to adequately assess the Orbiter requirements for the far term. Therefore, we strongly support the President's decision to maintain the Orbiter production base through the procurement of spares. We need more time to adequately assess the capabilities of the existing four Orbiters and to update the projections of the demand for their services. In the meantime, the President's decision will, by providing an expanded spares program, allow for the fullest possible use of the existing fleet and will allow the future production of Orbiters if our assessments indicate the need.

REPROGRAM FUNDS

QUESTION: Is the Department now preparing to reprogram funds out of FY 1983 Titan III missile procurement to support other space program efforts?

ANSWER: Yes. As outlined in our long-standing strategy for transition from expendable launch vehicles to the Space Shuttle, the successful sixth Space Shuttle flight (STS-6) adequately demonstrates the capability to meet Defense launch needs. Based upon completion of this flight, the Air Force is beginning phaseout of Titan production capability. FY83 funds (which were identified for either long lead procurement of the next two Titan boosters or to begin phaseout) will be used for phaseout. Since phaseout costs are less than that required for procurement, some FY83 funding is available for reprogramming.

BACKUP EXPENDABLE LAUNCH VEHICLE CAPABILITY

QUESTION: Can you explain why we are not going to maintain a backup expendable launch vehicle capability? Should major shuttle problems develop, would you be willing to reverse your policy on Titan III booster production? If we need to put up a satellite quickly, don't we really need to have an expendable launch vehicle capability? Isn't the shuttle turn around time simply too long to permit us this capability?

ANSWER: Following successful completion of the sixth Space Shuttle flight (STS-6), the Air Force intends to suspend further Titan Expendable Launch Vehicle (ELV) procurement. This decision is based on a review of Titan production requirements, existing vehicle inventories, projected mission launch requirements, status of payload transition from ELVs to the STS, and the potential commercialization of Titan production and launch operations.

The Air Force has been proceeding with its strategy for transitioning DOD spacecraft from ELVs to the Space Shuttle. Spacecraft designs have been optimized for Shuttle launch and we will have only one Titan ELV compatible spacecraft (the Defense Satellite Communication System III-DSCS III) in our inventory after 1987. A sufficient number of Titans have already been procured to launch all prime ELV missions, plus provide a backup for the first operational Shuttle launch from Vandenberg AFB.

Although we will be ending Air Force procurement of Titans, there is a high probability that the ELV capability will be sustained commercially. We could then procure a commercially marketed Titan (although considerable modification might be required) if needed for one of our missions.

The Air Force has maintained Titan production capability while awaiting Shuttle operational status. As long as the STS program is sustained with needed production and operations funding support, the robustness of the DOD launch capability is fundamentally the same as with ELVs, and the ability of the U.S. to conduct space-based operations will not be impaired. Further, we can exercise national security preemption rights, if required, and launch on the next available Shuttle flight; although we would only do this in cases of extreme need. Therefore, we will still be able to meet our Defense launch requirements. The current Shuttle turnaround time predictions are adequate for this purpose.

DEFENSE RESEARCH SCIENCES

QUESTION: The Air Force Budget request for defense research sciences is $25 million larger than last year's appropriation. This comes out to a real growth of approximately 15 percent. Why is the Air Force defense research sciences line increasing so rapidly? Just what projects and new starts are responsible for this growth?

ANSWER: The requested increase of $25 million will allow new FY 84 initiatives to start, increase the investment in the FY 82 and FY 83 initiatives, and provide a modest increase in areas of special interest in the continuing program.

The FY 84 program includes $11 million for new initiatives. (1) Short wavelength laser sources with the goal of increasing the power and compactness of high energy laser systems, issues of great importance to weapon system applications. (2) Systems reliability prediction with the goal of reducing maintenance costs by taking into account the degradation of components and systems, the interdependence of components, and the effects of partial or imperfect repairs. (3) Optical signal processing techniques for real-time information processing with the objective of providing faster, more accurate information from reconnaissance and surveillance platforms, and real-time military scenes for command, control, and communications.

The momentum of FY 83 space-directed initiatives will be increased in FY 84 by $5 million. These include research in space propulsion, space power, spacecraft structures and materials, spacecraft image processing, and spacecraft survivability. The goals of this research are: space vehicle maneuverability, power for directed energy weaponry, the creation of large flexible platforms, computer processing of images, protection of space systems from high energy laser radiation, and concealment from radar, optical, and infrared search systems.

The momentum of FY 83 initiatives in aerodynamics of fuel efficient aircraft and low speed take off and landing, weapon system automation, manufacturing sciences, and chemical defense will be increased by $4 million.

The remaining increase will be invested in the continuing program for research on advanced diagnostic techniques for airbreathing and rocket propulsion systems; research efforts in support of the development of directed energy weapons, in particular investigations of space unique problems; advanced aerodynamics prediction techniques, including research in controlling turbulence; high power microwave sources for advanced radars and communications; and regulation of bioreactivity, with the objective of providing means to significantly enhance man's ability to rapidly perceive, process, and make decisions upon critical information.

ADVANCED TECHNOLOGY DEVELOPMENT

QUESTION: The Air Force has a number of new project and program starts in advanced technology development. Please outline all of your new program starts and include justification for each.

ANSWER: Following are the Air Force's Advanced Technology Development project and program new starts in FY 84:

63205F, Flight Vehicle Technology

2978, Reliability and Maintainability for Flight Vehicle

Technology. Develops and tests individual components to be integrated and flight tested in PE 63245F, Advanced Fighter Technology Integration. Supports integration of more mature components and software during flight test. Fault tolerance is accomplished by using redundant software elements and time staggering of computer operations. This inherent self-checking characteristic will demonstrate the effects of hidden software faults and decrease development and testing time. Develops methods to use the inherent computing power of digital systems to provide automatic diagnostics and maintenance action reporting, which will improve reliability and reduce ownership costs. The computational speed and expanded memory of digital flight control systems will be combined with predictive software techniques to enhance the system's ability to detect faulted or damaged elements and indicate how to fix them. The ability to reconfigure around a faulted system to reduce maintenance time will be demonstrated. This project will also develop and test a dynamic diagnostic function for the Integrated Inertial Reference Assembly to provide the capability for detecting faults that cannot be found during ground testing. The gain in system safety and reliability may eliminate the need for aircraft intermediate shops, thereby decreasing maintenance time and costs. This project will produce design guidelines and criteria to update military standards and specifications.

63231F, Crew Systems Technology

2829, Cockpit Automation Technology. This project is transitioning from exploratory development into advanced development in FY 84 as a new project. This project will resolve the operator/manager task overload problem in the cockpit of modern sophisticated tactical aircraft by developing methodology to maximize decision making by the system operator/manager. Technologies demonstrated in this project complement weapon system equipment automation efforts and enable effective human interface with these systems. This project will provide procedures for evaluating future cockpit design in quantitative terms of effectiveness and survivability through full mission simulations.

2868, Crew Escape Systems Technology. Mental and physical demands can place the operator in situations from which he cannot recover. This project will demonstrate technology which will expand the safe ejection envelope to the extremes routinely encountered in modern tactical mission scenarios. This project complements current advanced development projects in aircraft maneuvering agility and thrust vectoring. Successful completion of this project will provide the means by which to reverse the unfavorable trend in escape injuries and fatalities.

63245F, Advanced Fighter Technology Integration (AFTI)

2979, Reliability and Maintainability for Fighter Technology Integration. Integrates, ground tests, and flight demonstrates enhanced reliability and maintainability concepts for advanced digital flight control system application. Integrates fault tolerance and automated diagnostic functions providing enhanced fault detection and isolation. Maturing these fault tolerant and automated diagnostics techniques will allow dynamic reconfiguration of system resources, increasing the time between failures that

impact the total system performance of the AFTI digital flight control system and the STOL engine controller. This project will then test the system in a ground based, real-time evaluation environment. Simulated malfunctions will be induced, testing the system's ability to identify, isolate faults, and take appropriate corrective actions. This effort's output will be the flight test baseline system. Flight testing will demonstrate the enhanced reliability and fault tolerance features for transition to operational use. This effort's output will be a validated set of design guides and criteria for future aircraft.

63751F, Innovations in Education and Training

2744, Unified Data Base Application. The Air Force Logistics Command and system program offices have a common need for a unified data base containing performance data on weapon systems for which planners, designers, and logisticians can build supportable weapon systems. This project will design and apply a prototype unified data base, which will be easy to use and will conform to the human factors needs of the users, to selected weapon systems in different stages of development. The data collected, and technology used to collect the data will, in turn, support development of future weapon systems by guiding planners at each stage of the development process. Such technology will enable weapon system planners to more accurately estimate training needs and integrate training requirements in the early stages of weapon system development.

2745, Logistics for Combat Readiness Maintenance. The Air Force needs to determine logistics requirements during wartime conditions. There are currently no analytical tools nor procedures to determine these requirements. This project will simulate combat scenarios in order to determine logistics needs based on maintenance demand rates and sortie generation requirements. This project will evaluate the capability of a peacetime unit to perform maintenance functions in a combat environment, thereby closely aligning peacetime operations and training with projected wartime requirements.

63103F, Advanced Airborne Radar

2831, Covert Strike. This project is to develop a covert/survivable in-weather strike/recce capability for the 1990s. The principal technology used is bistatic radar, where the target is illuminated by a radar operating in a sanctuary while the strike/recce aircraft penetrates and acquires the target in a "listen only" mode. This technique allows effective use of stealth technologies, enhances surprise attack, and denies the enemy effective use of high gain jamming.

63406F, Advanced Military Spaceflight Capability

Spaceflight Technology Development. This is a new start, technology development program. This is the DOD's only applied, advanced technology program for defining, developing, and demonstrating space launch and orbital transfer vehicle technology required for military space mission support in the 1990s.

63704F, Manpower and Personnel Systems Technology

2922, Personnel Assessment System. To meet advancing Air Force combat capabilities, readiness, and sustainability a constant input of capable manpower is needed. The technology to identify, select, train, and retrain individuals who are capable of mastering complex technical skills must be developed. This technology must include the development of new systems which would provide information currently unavailable on individual job performance. When completed, this project will provide measures for validation of enlisted selection and promotion tests and will reduce the risk of civilian class-action suits against the government which could result in a cost avoidance of approximately $2.5 million per year. Replacement of service tests and test batteries is required to avoid obsolescence, guard against test compromise, and incorporate improvements identified in ongoing service test research programs.

2948, Comprehensive Data Analysis Program (CODAP). The currently operational CODAP system is rapidly becoming antiquated and difficult to maintain, and an advanced development program is required to provide a top-down structured approach to system redesign and reprogramming to make it more efficient, easier to maintain, and more user-friendly. The original CODAP system has resulted in cost avoidance of over $3 million per year since its implementation in FY 68 and its redesign should make its utility more cost effective.

2951, Training Decisions System. Because of the scope of Air Force technical training, many decisions with major impacts on training are made, to some extent independently and at different times, by management units responsible for different parts of the training and personnel systems. Coordinating such efforts is complex, and relevant data are not always available at key decision points when they are needed. A need exists for a more unified, practical, and integrated approach to such problems with all relevant data considered at once for certain basic decisions. Benefits from this project include reduced training costs, improved allocations of training content and resources, and demonstrably better alignment of training content with job task requirements. When operational, projected total savings plus cost avoidance are on the order of $50 million per year, at a minimum.

63106F, Logistics R&D Requirements

2940, Computer Technology for Systems Design and Maintenance. The Air Force must develop technologies to improve the reliability and maintainability of weapon systems. The goal of this effort is to enhance systems reliability while reducing the support complexity and requirements for skilled maintenance personnel. This project will develop methodologies to expand Computer Aided Design techniques to provide the means for early incorporation of R&M considerations into the design process.

2950, Dormant Reliability Technology Development. The Air Force must develop techniques and methodologies for guaranteeing that weapon systems which have been placed in storage for extended periods of time will function reliably when they are withdrawn from storage. The storage or dormant reliability of complex

weapon systems such as the modern smart weapons, cruise missiles, etc., is a formidable problem because periodic testing of these weapons systems components, engines, motors, etc., requires highly skilled maintenance personnel and also shortens the effective weapon's life by contributing to the wear of various weapons system components. This project will develop new techniques for use in the design of systems, new materials, improved storage methods, and non-destructive testing techniques, all of which will reduce or eliminate degrading factors associated with weapon system storage. New methodologies will also be developed for use in predicting and evaluating the reliability of weapon systems being removed from storage for combat use, in order to maximize the quick reaction capabilities of the Air Force through assured weapon system availability.

63259F, Cartographic Applications

2810, Digital Mapping and Charting Technology. This project will technically validate consolidated future Air Force requirements for digital cartographic data. It will construct a sample of a data base segment which will include all the validated features the Air Force will need and will experimentally test the adequacy of the data base elements so a specification can be provided to the Defense Mapping Agency (DMA). This will insure that the master data base DMA constructs includes the largest possible set of foreseeable Air Force weapon systems needs. This project will also develop an interactive support facility in which weapons developers using digital cartographic data can experimentally verify and test their digital cartographic data subsystems using the universal data base, greatly reducing overall system cost and risk. Without this facility, future systems will continue to needlessly duplicate developments and will continue to lay overlapping data base requirements on DMA.

AWARD OF CONTRACT

QUESTION: The Committee understands that the first selection on the dual role fighter will not occur until November at the earliest. When will you award the contract?

ANSWER: We anticipate contract award in January 1984.

CONGRESS NOTIFICATION

QUESTION: Doesn't this amount to awarding a contract before Congress knows what type of aircraft actually is to be procured?

ANSWER: We plan to brief key Congressional committees prior to the award of a Dual Role Fighter contract.

ASSURANCES TO COMMITTEE

QUESTION: Last year our Committee in its report expressed concern over the Air Force developing both F-15 and F-16 dual-role aircraft. What assurances can you give the Committee that the Air Force has no intentions of doing so?

ANSWER: The Air Force does not plan to pursue full scale development of two dual role configured fighters ("E" versions). Developing both F-15 and F-16 aircraft to full dual role configurations with two-seats, missionized rear cockpits and night, under the weather attack avionics appears to be cost prohibitive.

SOURCE SELECTION

QUESTION: Following source selection, what specific evolutionary improvements do you intend to conduct with the aircraft that is not selected as the dual role fighter?

ANSWER: There are currently no specific evolutionary improvements planned for the aircraft not selected as the Dual Role Fighter beyond those being incorporated in the F-15 and F-16 through Multi-Staged or Multinational Staged Improvement Programs (MSIP). However, some refinements may be made in MSIP planning as a result of improving threat capabilities and the knowledge gained from the comparative demonstration.

COST OF F-15E AND F-16E

QUESTION: Information made available to the Committee last year shows that the cost of 400 F-15Es will be $16 billion, the cost of 400 F-16Es will be $12 billion. We now have preliminary information from the Air Force that these cost estimates have decreased to $15.2 billion and $11.4 billion, for the F-15E and F-16E, respectively. Just how firm are these cost estimates on the F-15 and F-16E?

Will these cost estimates assume multiyear procurement?

ANSWER: The lower estimates are the result of independent cost analyses conducted on each program and have a higher degree of confidence than the estimates provided last year; however, we are requesting firm cost quotes from both contractors which will then be negotiated before a final decision is made. The contractor quotes will cover the first 160 aircraft. The Air Force will then conduct a "most probable cost" analysis for the total program. The negotiated costs, used in the comparative evaluation, will be on an annual procurement basis.

M-X MISSILE

QUESTION: The Subcommittee has noticed a marked lack of specific technical and cost information in this year's M-X descriptive summaries. In particular, there is very little information breaking out specific costs for M-X missile full scale engineering development. We have attempted to obtain this information through questions to the Air Force on numerous occasions, particularly with regard to the delta above what was projected for FY 1984 M-X R&D, and what actual M-X R&D budget request is this year, but that information still has not yet been made available to the Committee. Please provide a funding breakout for the following M-X full scale engineering development programs: the hardening program; M-X missile production hardware; long term research on the deep basing option; and all funding in both the missile R&D and in full scale engineering development efforts for flight testing.

ANSWER: Based on the President's ICBM recommendation of 19 April 1983, the following FY 84 funding breakout applies:

Peacekeeper Research & Development

		FY 84 $ in Millions
I	Silo Deployment	
	Missile Hardware	1208
	Missile Flight Test	249
	Silo Hardware	525
II	Technology Development Programs	
	Hardness Program	200
	Small Missile Program	270
	Hard Mobile Program	70
	Deep Basing	50

CURRENT SCHEDULE

QUESTION: Please provide for the record the current ballistic missile office MX procurement schedule.

ANSWER: Under the assumption that there is an FY 83 requirement for production related actions, the Peacekeeper missile buy is planned as follows:

FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	TOTAL
27	37	48	48	48	15	223

COST ESTIMATE

QUESTION: Please provide for the record a cost estimate of the basing R&D money required in FY 1984 to support deploying 50 MX missiles in Minuteman silos.

ANSWER: We project that in order minimize the risk of achieving an 1986 IOC of Peacekeeper in Minuteman silos, approximately $525 million will be required in FY 84 for basing efforts related to this deployment mode. This estimate is classified as a category IV and is based on preliminary analyses by the program office.

TECHNICAL FEATURES

QUESTION: What are the major technical features of the M-X missile deployed in the closely spaced basing mode?

ANSWER: The M-X/CSB deployment concept makes use of superhard silos and close spacing to limit the effectiveness of any current Soviet nuclear capability, and to provide the most flexible options to respond to reactive or unanticipated growth in the threat. Much of the data we have on superhard silos take advantage of [deleted.] From this we have developed and designed a silo which would be approximately 20-22 feet in diameter and 170 feet deep, would be made of highly-reinforced concrete (3-5% steel) with inner and outer steel liners, would have "push-out" lids capable of overcoming ejecta coverage, and would be able to withstand a 25 MT blast some 1300-1500 feet away. The Peacekeeper missile itself would be structurally hardened to withstand (d) vertical and horizontal acceleration as well a (d) psi blast overpressures. It would be electrically protected against high altitude electromagnetic pulse (EMP),

isolated from magnetohydrodynamic-EMP, and hardened against [deleted] calories of X-radiation and (d) calories of thermal radiation.

The 100 silo/missile systems would be deployed 1800-2500 feet apart in a general hexagonal layout, 2-3 silos in each row, extending in a northerly direction. This combination of super-hard silos, close spacing, and geographic orientation would tend to drive the Soviet planner toward trying to achieve conflicting objectives: he would require large yield weapons to defeat the CSB system's hardness, but at the same time he would require small yield weapons to reduce fratricide. This results in almost a [deleted] exchange ratio of [deleted] ICBMs to implement an attack on each M-X/CSB element, and also results in an attack scenario which would drag out for some 5-8 hours--providing valuable time for the NCA to effectively employ the Triad in an appropriate retaliation.

REQUIREMENT FOR FY 83 PROCUREMENT FUNDS

QUESTION: The MX R&D descriptive summaries state that a supplemental will be required to restore the FY 1983 funding requirement to be consistent in CSB deployment. If there is a change in the deployment plan for the MX missile and there is a move away from CSB deployment, is there still a requirement for FY 1983 procurement funds? Please take into consideration your answer to the question on the current BMO MX procurement plan.

ANSWER: Yes, in order to minimize the risk of achieving a 1986 IOC for Peacekeeper deployment there is an FY 83 requirement to begin production related activities.

STANDOFF ATTACK WEAPON

Question: The Air Force is asking for $16.4 million to start the Standoff Attack Weapon program. This weapon is supposed to be able to deliver payloads to distances of 10 to 20 nautical miles, yet the Air Force is also asking for continued R&D to develop conventional standoff weapon and the medium range air-to-surface missile. Why does the Air Force want to initiate a new weapons program that has such a short standoff weapons range?

Answer: SAW will give the TAF a significant capability. It will allow tactical aircraft to standoff from current and projected terminal area threats. By limiting the range, we are able to keep the overall weight of the weapon at a level compatible with employment on a tactical fighter aircraft. Its weight, approximately [deleted] will not adversely limit the aircraft's operational performance.

Limiting the range also significantly improves two major considerations, payload and affordability. SAW will have a [deleted] payload, thus making the weapon weight-to-payload ratio about two to one. By limiting the range, currently developed subsystems such as guidance and propulsion can be used to reduce the cost, thus allowing the USAF to procure a sufficient number to meet all USAF requirements.

JOINT TACTICAL MISSILE SYSTEMS (JTACMS)

QUESTION: Please provide for the record a comparison of the ranges of the conventional standoff weapon with those of the standoff attack weapon and also the medium range air to surface missile.

ANSWER: MRASM: (Deleted); JTACMS: (Deleted); SAW: [deleted.] The ranges are, of course, dependent on the launch platform's airspeed and altitude for the USAF weapons (JTACMS has an Army, ground-launched variant).

DEVELOPMENT OF THREE STANDOFF ATTACK WEAPONS

QUESTION: Why does the Air Force want to develop three standoff attack weapons that have three decidedly different range capabilities? How does the conventional standoff weapon relate to both the precision location strike system and the JSTARS program?

ANSWER: The SAW is a short range, powered dispenser weapon to allow tactical aircraft standoff from terminal threats. It will use current technology with emphasis on previously developed subsystems to reduce the cost so that it can be procured in a sufficient quantity to meet all TAF requirements.

MRASM will be used specifically for airfield attack. It will be a long range, autonomous cruise missile launched from B-52Gs. MRASM, due to its relatively high cost will only be procured in a limited quantity. It would be used during the first few days of a NATO conflict when the threat to penetrating aircraft is the highest.

The Conventional Standoff Weapon has been incorporated into a joint USAF/USA program called Joint Tactical Missile System (JTACMS). JTACMS would have a range of [deleted] and would use targeting information from a variety of sources including PLSS and Joint STARS. Initial versions would use PLSS information to attack enemy radars. Later versions of JTACMS would use Joint STARS information to attack second echelon targets.

F-111 SQUADRONS

QUESTION: The budget request for F-111 Squadrons has doubled from the appropriation of last year. Please provide for the record a justification for this budget increase and please concentrate on the new F-111 avionics modernization project. Why is it necessary to proceed in FY 1984?

ANSWER: The FY 1984 request has increased primarily because of the $53.7 million funds to support the modernization of the F/FB-111 Avionics Suite. The F/FB-111 Avionics Modernization Program (AMP) is a Class IV Modification that updates the bomb-navigation subsystem of 388 F-111 and FB-111 aircraft. This program was necessitated by the decreasing reliability (Mean Time Between Failure = 1.56 hrs for the FB-111) and increasing support costs of the current avionics components. The AMP is strongly supported by the Operational Users (SAC, TAC, USAFE) and the FY 1984 program must proceed to continue program efforts to meet a Dec 1986 operational requirement for the modified FB-111.

ALTERNATE FIGHTER ENGINE

QUESTION: Has the Request for Proposal (RFP) been released on the alternate fighter engine?

ANSWER: No, the RFP has not been released as of 10 May 1983.

RFP SCHEDULE FOR RELEASE

QUESTION: When was the RFP originally scheduled for release?

ANSWER: The RFP was originally scheduled for release on 30 March 1983.

REQUIREMENT FOR THE PRODUCTION

QUESTION: What will the RFP list as a requirement for the production of a new fighter engine?

ANSWER: The RFP reflects a six year requirement of 2064 installed engines, an additional 455 equivalent engines as spares, and 10 trainer engines. Also included is a requirement for not to exceed prices for 266 engines to address possible Navy options on the F-14.

REQUIREMENT FOR F-110 ENGINE

QUESTION: Does a requirement now exist to develop the F-110 engine?

ANSWER: We clearly have a requirement to procure engines to support our expanding F-15 and F-16 fleets. As well, we also have a requirement for a durable, operable, and reliable engine to support those fleets. We are convinced that the best way to do that is through competition and have invested the authorized and appropriated funds in FY 83 to begin full scale development of both the F110 and a Digital Electronic Fuel Control (DEEC) for the F100. Both engines are projected to meet our requirements with substantially reduced support costs and over twice the durability of today's engine.

WARRANTY REQUIRED

QUESTION: Will the RFP require a warranty at 3,000 or 4,000 tactical cycles?

ANSWER: The RFP will include several types of warranties including a 3000 cycle combustor/high pressure turbine warranty, a 3000 cycle warranty demonstration period, and a three year warranty on the full engine. The contractors will also be encouraged to recommend their own innovative approaches to warranties.

CURRENT DEFINITION OF A TACTICAL CYCLE

QUESTION: What is the current definition of a tactical cycle? Has that changed from last year?

ANSWER: As a measure of low cycle fatigue wear on turbine engines from the mid-70s until late 1982, one TAC cycle was defined as one start-up, accelerate to intermediate (same as military) power or above, and shut-down excursion, called a Type I cycle, (usually one per flight); or four of the idle to intermediate power to idle throttle transients incurred in operation (Type III cycles). In late 1982, as part of upgrading the Accelerated Mission Test (AMT)

to the latest actual flight usage data, an additional factor was included to account for the many, but less damaging, cruise to intermediate power to cruise (Type IV cycles) actually incurred in flight. Type IV cycles are now included with forty required to count as one equivalent TAC cycle. The equations for determining equivalent TAC cycles are shown below:

Total Equiv TAC cycles (old) = Type Is + 1/4 Type IIIs
Total Equiv TAC cycles (new) = Type Is + 1/4 Type IIIs + 1/40 Type IVs

F110 DESIGN SPECIFICATIONS

QUESTION: Are the F110 design specifications less severe than those of the F100?

ANSWER: The F110-GE-100 engine specification is not less severe than the F100-PW-220.

FLIGHT ENVELOPE OF THE F-110

QUESTION: How does this restrict the flight envelope of the F-110?

ANSWER: No restrictions of the F-16 or F-15 flight envelopes are expected with the F110.

F110 COMPATIBLE WITH F-15 AIRCRAFT

QUESTION: Is the F110 compatible with the F-15 aircraft? Does it reach temperature limit after it exceeds mach 1.9 that will force its speed to go down or force it out of that portion of the flight envelope?

ANSWER: The F110 is fully compatible with the F-15. No speed limit exists within the F-15 envelope.

F110 ENGINE IN THE F-16 AIRCRAFT

QUESTION: Would use of the F110 engine in the F-16 aircraft in any way affect our F-16 coproduction agreements with our NATO allies? Be specific.

ANSWER: F-16 coproduction obligations will be met regardless of the outcome of the engine competition. Both contractors must address in a coproduction plan how they would meet potential offset requirements thereby ensuring that national commitments are met.

REQUIREMENT FOR A HIGHER THRUST ENGINE

QUESTION: Do we now have a requirement for a higher thrust engine in either the F-15 or F-16?

ANSWER: No. Higher thrust has never been an objective of the current competition. Both engines meet our performance requirements. What we do require is a durable, operable, and reliable engine with reduced support costs as we expand our F-15 and F-16 fleet.

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MORE THRUST

QUESTION: If the Air Force has no requirement for higher thrust fighter engines, why is it proposing that the thrust of the Advanced Tactical Fighter be around 30,000 pounds---far above that of either the F-100 or F-110.

ANSWER: Our competition for improved durability, operability, and reliability engines for the F-16 and F-15 does not include a requirement for higher thrust. As we look toward the early 1990's, we project a requirement for a totally new aircraft to meet the threat. A new design engine is required for this advanced aircraft. These engines will require higher non-augmented thrust than today's engines to allow for supersonic cruise. Specific thrust requirements are still being tailored.

We are investing our limited resources today to acquire a durable fighter engine for today's fighters. As we move toward the next generation, we will ensure that durability remains high priority.

SUBCOMMITTEE RECESS

Senator RUDMAN. I would simply say that I am going to suggest to the chairman of the subcommittee that in the fall, concluding these hearings, that we do in fact have a hearing addressing the issue that we spoke of a few moments ago.

I expect that we can probably hold it in a very small room. It will be very dull and boring, but it might amount to something. I would like each of the witnesses here to be prepared to bring the appropriate people so that we can address the problem of how we are structured in this area, and whether or not, with all of the initiatives that we publish, we have the structure to carry them out.

The subcommittee will now stand in recess subject to the call of the Chair.

[Whereupon, at 12:15 p.m., Thursday, August 4, the subcommittee was recessed, to reconvene at the call of the Chair.]

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